

APPENDIX A. **Our Required and Authorized Services**

2021 Hazardous Waste Management Plan

Hazardous Waste Management Program in King County

APPROVED AND ADOPTED BY
KING COUNTY BOARD OF HEALTH
NOVEMBER 2021

Prepared by
Hazardous Waste Management Program in King County

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1 Summary of Guidance and Practices



This document summarizes the Hazardous Waste Management Program's (Program) guidance and practices related to managing the Program's required and authorized services as of April 2021. This summary is intended to serve as a working reference document for use by Program staff and partners. It may be updated or evolve over time.

1.1 Overview of What Limits the Program's Scope?

The Program's authorization is established by (1) [RCW 70A.300](#); (2) [King County Board of Health Code 11.04](#); (3) guidance from the Washington State Department of Ecology (Ecology) in [Guidelines for Developing and Updating Local Hazardous Waste Plans](#); (4) caselaw regarding use of fees; and (5) the domains of other agencies.

The Program was established to manage "moderate-risk waste" and "household hazardous waste,"ⁱ to work upstream to prevent the generation of hazardous materials,ⁱⁱ and to protect public health and the environment by reducing threats posed by hazardous materials.ⁱⁱⁱ The Program should not be working on materials that do not have toxic properties as described in the definitions at the end of this document. Materials that are household hazardous waste are listed in the Ecology guidance, which was last updated in 2010 and includes lead, pesticides, polybrominated diphenyl ethers (PBDEs), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), motor oil, personal care products, and more.^{iv}

Ecology lists various activities and services that the Program must or may provide. These include household hazardous waste (HHW) collection, household and public education, small business technical assistance, and upstream activities such as product stewardship.^{v, vi}

In addition, Ecology states that services may be provided if they are "deemed appropriate by local government"^{vii} and "do not replace nor detract from the main programs delineated."^{viii} While the provision "other programs that are deemed appropriate" broadens the scope, what is "appropriate" is limited by caselaw and the domains of other agencies.

Covell v. Seattle describes the three requirements that a charge imposed by a governmental entity must meet to be a constitutionally allowed regulatory fee.^{ix} First, the primary purpose of the charge must be to regulate in alignment with the program's purpose and mission.^x Second, the money collected must be allocated to the authorized regulatory purpose. Third, there must be a direct relationship between the fee charged and the service received by those who pay the fee or

between the fee charged and the burden produced by the fee payer. It is important that the Program ensures that the money collected is used on our authorized regulatory purposes and that benefits our ratepayers.

Finally, the Program generally avoids taking on issues that are the primary responsibility of another agency. For instance, if another agency is required to work on a particular issue, the Program should carefully consider whether it is reasonable to overlap with this work and whether doing so “detracts from the main programs delineated” above.^{xi}

1.2 Criteria and Questions

The following set of questions has been developed for Program staff to use in determining whether or not a particular issue is potentially within the Program’s authorization. If the answer is “yes” to questions 1, 2, and 3, then there is a direct relationship between the fees charged and the services received by ratepayer, so the fee issue is settled.

For the Program to consider an issue within its scope, each of following four questions must be answered with a “yes.” A “no” answer to any question would disqualify the issue.

1. **Does the project address hazardous substances, including moderate-risk waste or other substances that meet at least one of the following criteria?** If yes, which one(s)?
 - ☐ Are persistent, bioaccumulative and/or toxic^{xii}
 - ☐ Are corrosive, explosive, flammable, or may generate pressure through decomposition or other means^{xiii}
 - ☐ Are household wastes as defined by Ecology’s guidance document (see list, which was updated in 2010 and includes lead, pesticides, PCBs, personal care products and more)^{xiv}
2. **Does the project concern an *activity* that is intended to achieve at least one of the following outcomes?** If yes, which one(s)?
 - ☐ Protect public health^{xv} by reducing exposures to hazardous substances^{xvi}
 - ☐ Protect the environment by reducing exposures to hazardous substances^{xvii}
3. **Does the project concern an *activity* that is either required, suggested, or permitted by the Department of Ecology, according to the following criteria?** If yes, which one(s)?
 - ☐ Required because it involves at least one of the following elements:^{xviii}
 - ☐ HHW collection
 - ☐ Household and public education
 - ☐ Small business technical assistance

- ☐ Small business collection assistance
 - ☐ Enforcement^{xix}
 - ☐ Used oil collection and education
 - ☐ Suggested because it involves at least one of the following elements:^{xx}
 - ☐ Agricultural education
 - ☐ Environmentally preferred purchasing
 - ☐ Product stewardship education/effort
 - ☐ Permitted because it is potentially "deemed appropriate" by the Haz Waste Program because it meets both of the following criteria:^{xxi}
 - ☐ The activity is not the responsibility of another agency.
 - ☐ The activity will not detract from the main program responsibilities of the Haz Waste Program.^{xxii}
4. **Does the project maintain the balance of services delivered to households and businesses in proportion to the fees collected from households and businesses?** If yes, confirm by checking the box below.
- ☐ Maintains the balance of services delivered to households and businesses in proportion to the fees collected from households and businesses.

1.3 Definitions

"Moderate-risk waste" means (a) any waste that exhibits any of the properties of hazardous waste but is exempt from regulation under this chapter solely because the waste is generated in quantities below the threshold for regulation, and (b) any household wastes which are generated from the disposal of substances identified by the department as **hazardous household substances**. [RCW 70A.300.010\(13\)](#).

"Hazardous waste" means and includes all **dangerous and extremely hazardous waste**, including substances composed of both radioactive and hazardous components. [RCW.70A.300.010\(11\)](#).

"Dangerous wastes" means any discarded, useless, unwanted, or abandoned substances, including but not limited to certain pesticides, or any residues or containers of such substances which are disposed of in such quantity or concentration as to pose a substantial present or potential hazard to human health, wildlife, or the environment because such wastes or constituents or combinations of such wastes: (a) Have short-lived, toxic properties that may cause death, injury, or illness or have mutagenic, teratogenic, or carcinogenic properties; or (b) Are corrosive, explosive, flammable, or may generate pressure through decomposition or other means [RCW.70A.300.010\(1\)](#).

"Extremely hazardous waste" means any dangerous waste which:

- (a) Will persist in a hazardous form for several years or more at a disposal site and which in its persistent form (i) Presents a significant environmental hazard and may be concentrated by living organisms through a food chain or may affect the genetic makeup of human beings or wildlife, and (ii) Is highly toxic to human beings or wildlife.
- (b) If disposed of at a disposal site in such quantities as would present an extreme hazard to human beings or the environment. [RCW.70A.300.010\(7\)](#).

"Hazardous household substances" means those substances identified by the department as hazardous household substances in the guidelines developed under RCW [70A.300.350](#).^{xxiii} [RCW.70A.300.010\(9\)](#).

"Hazardous substances" means any liquid, solid, gas, or sludge, including any material, substance, product, commodity, or waste, regardless of quantity, that exhibits any of the characteristics or criteria of hazardous waste as described in rules adopted under this chapter. [RCW.70A.300.010\(10\)](#).

ⁱ The Program was established under the 1976 [Resource Conservation and Recovery Act](#) (RCRA) which makes the management of hazardous waste a priority. RCRA delegates the management of hazardous wastes to the states. [CFR 40.271.1\(a\)](#). In Washington State, the Washington State Department of Ecology (Ecology) further delegated management of hazardous waste to local jurisdictions. [RCW 70A.300](#).

The King County Board of Health establishes the Program's management committee (BOH Code 11.04.040), requires the committee to develop an annual plan and budget for reducing moderate risk waste generation and protection of public health and the environment by reducing the threat posed by hazardous materials (BOH Code 11.04.050), and sets fees to providing funding for the program (BOH 11.04.060).

While BOH established the management committee and funding mechanism, it is Ecology that approves our Hazardous Waste Management Plan which is required under RCW 70A.300. Each Ecology regional office has authority to approve or deny all plans to ensure they meet the requirements of RCW 70A.300.360 and the Local Hazardous Waste Planning Guidelines.

ⁱⁱ [Guidelines for Developing and Updating Local Hazardous Waste Plans](#)

ⁱⁱⁱ BOH Code 11.04.050

^{iv} [Guidelines for Developing and Updating Local Hazardous Waste Plans](#)

^v [Guidelines for Developing and Updating Local Hazardous Waste Plans](#), pages 9, 25, & 45.

^{vi} [Guidelines for Developing and Updating Local Hazardous Waste Plans](#), page 45.

^{vii} [RCW 70A.300.350\(1\)\(a-f\)](#).

^{viii} [Guidelines for Developing and Updating Local Hazardous Waste Plans](#), page 45.

^{ix} *Covell v. Seattle*, 127 Wn.2d 874, 878, 905 P.2d 324 (1995), citing *Margola Assocs. v. Seattle*, 121 Wn.2d 625, 634-35, 854 P.2d 23 (1993); Wash. Const. art. XI, § 11.

^x 127 Wn.2d 874, 879, 905 P.2d 324 (1995).

^{xi} Further, it may be that RCW 43.09.210, sometimes referred to as the Accountancy Act or local government accounting statute, limits Haz Waste from providing services to another department. That statute provides (with emphasis):

All service rendered by . . . one department... to another shall be paid for at its true and full value by the department... receiving the same, and *no department... shall benefit in any financial manner whatever by an appropriation or fund made for the support of another.*

This statute prevents one government agency from transferring property or services to another without receiving fair value in return.

^{xii} See definition of moderate-risk waste ([RCW 70A.300.010\(13\)](#)) in Appendix B.

^{xiii} See definition of moderate-risk waste ([RCW 70A.300.010\(13\)](#)) in Appendix B.

^{xiv} See definition of household waste (RCW.70A.300.010(9)) in Appendix B. This definition defines household waste as “those substances identified by the department as hazardous household substances in the guidelines developed under RCW [70A.300.350](#).” Those guidelines are in Appendix F to this document: [Guidelines for Developing and Updating Local Hazardous Waste Plans](#).

^{xv} BOH has found that it is in the interest of “public health that moderate risk wastes not be commingled with other solid waste nor placed into sewage disposal systems through which underground and surface waters may be contaminated” BOH 11.04.010.

^{xvi} BOH Code 11.04.050

^{xvii} BOH Code 11.04.050

^{xviii} [Guidelines for Developing and Updating Local Hazardous Waste Plans](#), pages 9, 25, & 45.

^{xix} Enforcement is described in the Guidelines as:

Local government ordinances and/or rules may contain:

- Bans on disposal of certain chemicals or waste types in the local landfill.
- Standards for CESQGs in the handling and disposal of hazardous waste.
- Procedures for responding to nuisances created by mismanagement of hazardous waste.
- Fees for onsite inspections for CESQGs, assistance in cleanup efforts and use of the local public MRW facility.
- Other actions as determined by the local government.

See [Guidelines for Developing and Updating Local Hazardous Waste Plans](#), page 27.

^{xx} [Guidelines for Developing and Updating Local Hazardous Waste Plans](#)

^{xxi} [RCW 70A.300.350\(1\)\(a-f\)](#).

^{xxii} [Guidelines for Developing and Updating Local Hazardous Waste Plans](#), page 45.

^{xxiii} RCW 70A.300.350 is regarding the requirement that local governments prepare local hazardous waste plans.



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APPENDIX B. **How We Prioritize Our Activities**

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1 How We Prioritize Our Activities



The Hazardous Waste Management Program (Program) provides services that are required, and we are allowed to pursue additional activities within our authorization, described in *Appendix A*. Our Program is required to provide moderate risk waste (MRW) collections services to King County residents and small quantity generators. We are also required or authorized to provide prevention and systems change activities such as household and public education, small business technical assistance, and promotion of product stewardship. There are numerous topics and issues that the Program could pursue within our authorization, and we need to make transparent, strategic, and thorough decisions about resource allocation.

The Program uses a set of questions to guide decision-making about authorized issues. The questions consider technical aspects of the issue, racial equity considerations, and whether the Program's available tools and tactics have the potential to positively impact the environment and the communities we serve.

In this context, an "issue" consists of three components; all must be present to be considered for review. The issue must:

1. Be a hazardous chemical/material/product/waste.
2. Have the potential to adversely affect people and/or environmental receptors.
3. Have known or suspected exposure pathway(s).

Table 1-1 on the following page provides the questions that the Program uses to guide decision-making. The questions will be re-evaluated over time to evolve with the needs of the Program, policies, and ratepayers.

Table 1-1 Assessment questions to guide decision-making

Criteria Category	Assessment Question
Technical	Does addressing the issue protect human health for residents in King County? • What are the known or expected health effects in King County? • Are the hazards acute or chronic? How severe are they? • How many people are exposed and what is their level of exposure? • What is known about sources and pathways of exposure? • Are there exposures to children or other vulnerable populations? • Are specific geographic areas impacted?
Technical	Does addressing the issue protect human health for workers in King County? • What are the known or expected health effects in King County? • Are the hazards acute or chronic? How severe are they? • How many people are exposed and what is their level of exposure? • What is known about sources and pathways of exposure? In what businesses are workers exposed? • Are there additional exposures to bystanders/non-workers and/or the environment? • Are specific geographic areas impacted? • Are vulnerable populations at particular risk (i.e., the young, elderly, women of childbearing age, and pregnant women)? See also the equity questions below

Criteria Category	Assessment Question
Technical	Does addressing the issue protect the environment in King County? • What are the known or expected environmental effects in King County? • Are the hazards acute or chronic? How severe are they? • What is known about pathways of exposure? • Are specific species of concern impacted, such as salmon or orcas? • Are there additional exposures to people? • Are specific geographic areas impacted?
Technical	Are there solutions available to reduce exposure in King County? • Have safer alternatives been identified to avoid use of the hazardous chemical? • Are there other ways to reduce exposure, such as best management practices or protective equipment? • Would the program's investment result in lasting change, such as capital investment in process equipment, rather than substituting routine process chemicals? • Are there other technical partners working on this issue? If so, what are they doing?
Racial Equity	Does addressing the issue reduce hazardous materials exposure for BIPOC, immigrant, refugee, or low-income communities? • To what extent does the issue effect BIPOC, immigrant, refugee, and low-income communities? • Will addressing the issue correct historical inequities, such as those identified through targeted universalism and results-based accountability? • Does the issue build capacity in impacted communities, including having a larger role in decision-making on this issue?

Criteria Category	Assessment Question
Racial Equity	Does addressing the issue avoid further inequities for BIPOC, immigrant, refugee, or low-income communities? • Are there any racial and/or socio-economic disparities that may result from this issue? If so, how will this be addressed? • Could the issue create any negative unintended consequences? If so, how will this be addressed?
Racial Equity	Is there readiness in the most impacted communities for addressing this issue? • Have the most impacted communities expressed concern about the issue? • Do the most impacted communities consider the benefits of taking action on the issue to outweigh the costs (financial, convenience, cultural meaning, etc.)? • Have community partners or leaders who work with the most impacted communities expressed interest in collaborating on the issue?
Strategy	Do the resources needed to address this issue match the expected benefits and the available Program resources? • What is the approximate size of the project (small, medium, or large)? • Does the Program have the expertise to address this issue in-house? • Is there staff enthusiasm/buy-in on this issue (other than the proposer)? • What additional resources are needed to address the issue?

Criteria Category	Assessment Question
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Strategy	Is there strategic alignment and/or a timely opportunity? • Does this issue align with the Management Plan? • Does this issue align with the Safer Alternatives Strategy? • Can this issue be leveraged with existing work? • Are there other stakeholders interested in this? If so, what are they doing? • Will this issue garner media attention? • Is a political champion/advocate available? • If there is strong opposition to adopting this issue, can the Program manage any negative consequences? • Is this an emerging issue that deserves immediate attention or is there another strategic advantage to tackle this issue immediately (e.g., new data to describe the problem or Program partners designing similar initiatives)? • Will addressing this issue lead to measurable improvement in human or environmental health? • Will addressing this issue lead to long-lasting improvement in human or environmental health?
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COST-SHARE PROGRAMS FOR BUSINESSES TO MAKE IMPROVEMENTS

The Hazardous Waste Management Program offers reimbursements on 75% of improvement costs (up to \$599) to businesses that make changes to protect workers or the environment from hazardous product use, storage, or disposal. By making a onetime financial investment, we help create lasting change.

THE POWER OF A VOUCHER

The pandemic did not stop the essential work of American Abatement and Demo (AAD). For staff there, the pandemic meant learning new safety protocols, installing more onsite sanitation facilities, and searching for everyday personal protective equipment that became expensive and hard-to-find. Meanwhile, work continued: lead, mold, and asbestos abatement and testing, general demolition, boiler removal, and vermiculite removal – all of which put employees in contact with hazardous materials and wastes.

A Hazardous Waste Management Program consultant reached out to share information about hazardous waste. She answered questions from AAD staff, shared materials in English and Spanish, and even helped staff locate where to dispose of mercury thermostats recently removed from a school.

The consultant also recommended the voucher program. AAD quickly jumped on the opportunity, using the voucher to purchase Tyvek suits – which were suddenly scarce and increasingly expensive – to keep workers safe from hazardous materials exposures on job sites. The voucher was crucial to staying in business, the owner shared. As a small, minority- and women-owned business, AAD emphasized the importance of the voucher program and shared the information with all their minority contractors.

POLICY

SYSTEMATIC CHANGES

The Hazardous Waste Management Program supports systematic changes in the production, use, and disposal of hazardous materials to help ensure that chemicals and products are safe for people and the environment. We build partnerships at many levels of government, with organizations, and with the broader King County community to achieve change.

OUR STATEWIDE POLICY EFFORTS

BATTERY STEWARDSHIP

When batteries reach the landfill, they waste valuable resources and pose threats to human health and the environment. A battery stewardship program in Washington would improve these health and environmental concerns while increasing battery recycling rates and improving safety for workers at material recycling facilities.

Battery stewardship legislation (HB 2496) was introduced by Representative Jared Mead in the 2020 legislative session. Hazardous Waste Management Program staff testified in support of the bill, and it had two hearings before the House Committee on Environment & Energy. Representative Mead worked with the Northwest Product Stewardship Council policy committee, Zero Waste Washington, and other stakeholders to develop the bill.

The legislation would have required a statewide, producer-funded stewardship program for batteries, including collection, transportation, processing, and education. Although it did not pass, the policy is in a strong position for future legislative sessions.



"SAFER PRODUCTS IN WASHINGTON" EVENT

A new law in 2020 authorized the Washington State Department of Ecology to regulate classes of chemicals in consumer products. To help gather feedback and engage the community about the regulations, the Hazardous Waste Management Program, Public Health – Seattle & King County's Environmental Health Services Division, and Ecology worked together to arrange the "Safer Products in WA" event.

The event saw tremendous success, with approximately 50 people and 20 different organizations in attendance – nearly all BIPOC- or women-led. The event was a useful opportunity for the Program to connect with organizations while demonstrating proactive community engagement to Ecology. Program staff were able to share information about the priority chemicals and why Ecology is regulating them. In turn, community members were able to ask questions about regulation and implementation and provide feedback on future engagement.



Photo Credit: Holly Davies



PAINT PRODUCT STEWARDSHIP

The Hazardous Waste Management Program collaborated with PaintCare, Seattle Public Utilities, and the King County Solid Waste Division to prepare for the 2021 launch of the new Architectural Paint Stewardship Program in Washington state. The creation of a product stewardship program for paint, primers, stains, sealers, and clear coatings is a major win for public health and the environment.

These products present health and safety risks, especially to workers in the solid waste industry. They also leak into water sources when disposed of in landfills. The paint program will help minimize these risks by providing convenient and safe recycling, reuse, and disposal solutions for leftover paint. Leftover latex paint can also be recycled and made into new paint. This program requires paint manufacturers to assume responsibility for the development and implementation of a cost-effective paint stewardship program.

LOOKING FORWARD

For 30 years, we have worked to protect human health and the environment in King County, and provide relevant, responsive, and effective services for our ratepayers. There is still much work to be done. King County continues to change and grow. Hazardous material exposure remains a significant problem for our residents and businesses. Easily available toxic products and chemicals continue to affect our communities – often inequitably. Our Management Plan Update will provide guidance for the next decade, incorporating current technical and community research and recommendations. Looking ahead, we remain dedicated to our mission, our ratepayers, and our commitment to racial equity.

KEY PRIORITIES

LEADING WITH RACIAL EQUITY

Race and hazardous material exposure are often correlated. To confront and dismantle this disparity, we prioritize racial equity in all our work. This means examining our services through an equity lens alongside community partners and revising – or building anew – where needed. Our internal and external work is informed by our Racial Equity Plan, which we will continue to put into practice in the months and years to come.

2020 MANAGEMENT PLAN UPDATE

The decade ahead promises policy changes and technological innovation, and we want to be prepared for it. We are in the process of updating our state-required Management Plan, which will be completed in 2021. This research-informed update will guide the Program's trajectory for the next ten years. In it we are prioritizing following through with racial equity commitments, advancing upstream change, and exploring collection facilities and needs.

RATES

The Program will be developing a rate proposal for the next rate period, which starts in 2023. A proposal will be developed and shared for partner feedback in late 2021, and then taken to the King County Board of Health in early 2022.



FINANCIALS

The Hazardous Waste Management Program received \$17,931,431 in revenue during 2020, primarily from fees on solid waste and sewer services. These fees, which apply throughout King County, are authorized by the King County Board of Health under Board of Health Code 11.04.060. Fees are collected by public and private utility providers (i.e., solid waste haulers, wastewater treatment plant operators, transfer station operators, and cities), who then pay into the Program.

FUND BALANCE		
2020 Beginning		\$15,203,256
	2020 BUDGET	2020 ACTUAL
REVENUES		
Wastewater Rate Revenue	\$3,800,960	\$3,844,001
Transfer Station Rate Revenue	\$3,234,374	\$2,681,239
Solid Waste Account Revenue	\$11,057,479	\$11,138,837
Interest Income	\$158,485	\$267,353
TOTAL REVENUES	\$18,251,299	\$17,931,431
EXPENDITURES		
Seattle Public Utilities	\$4,234,176	\$3,312,666
King County DNRP, Solid Waste	\$5,085,167	\$4,097,175
King County DNRP, Water & Land	\$6,875,346	\$6,342,293
Public Health – Seattle & King County	\$5,166,635	\$3,874,335
City and Tribal Contracts	\$546,146	\$408,660
City and Tribal Event Inspections	\$24,926	\$24,926
Disaster Debris Contingency	\$25,000	\$0
TOTAL EXPENDITURES	\$21,957,396	\$18,060,056
FUND BALANCE		
Net Revenues Over (Under) Expenses		(\$128,625)
2020 End		\$15,074,632



Hazardous Waste Management Program

GOVERNMENTS WORKING TOGETHER FOR
A HEALTHIER AND CLEANER KING COUNTY

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APPENDIX D.
**Annual Work Plan
(Implementation Plan)**

2021 Hazardous Waste Management Plan

**Hazardous Waste Management
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1 Preview of 2022 Annual Work Plan



As of September 2021, the Hazardous Waste Management Program (Program) is in the early stages of developing its 2022 Annual Work Plan for the Management Coordination Committee (MCC) to review and approve in January 2022. The 2022 Annual Work Plan will include the following items based on ongoing operations, previously committed projects, and activities identified as part of the 2021 Hazardous Waste Management Plan.

- Collection
 - Continue collecting moderate risk waste.
 - Begin scoping a *Collections Services and Facilities Study*.
 - Review moderate risk waste collections policies in the context of extended producer responsibility regulations, including the policies for latex paint.
- Prevention
 - Continue pilot projects for lead in cookware used in homes and degreasers used by small quantity generators.
 - Continue outreach and education work on safer cleaning and lead with contracted partners.
 - Continue investigations for children with elevated blood lead levels.
 - Continue business technical assistance and vouchers.
 - Begin audience research study to inform our strategic communications plan.
- Policy
 - Continue studying the feasibility of extended producer responsibility for all household hazardous waste.
- Operations
 - Develop community partnership guidance.
 - Evaluate progress on the *Racial Equity Strategic Plan and Implementation Plan* and begin scoping an update to the plans.
 - Identify population indicators and data sources to support identification of emerging needs, issues, and trends.
 - Develop requirements and proposal for a performance management data system.
 - Develop performance metrics for Program work using the [Equity-Centered Results-Based Accountability](#) framework.
 - Continue working on organizational development priorities.

The Program will continue to develop and add to this list as work planning progresses through the fourth quarter of 2021.

2 Published 2021 Annual Work Plan





2021 Program Work Plan



**Hazardous Waste
Management Program**

GOVERNMENTS WORKING TOGETHER FOR
A HEALTHIER AND CLEANER KING COUNTY

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Program Mission

The Hazardous Waste Management Program is a multi-agency coalition program whose mission is to protect and enhance public health and environmental quality throughout King County by reducing the threat posed by the production, use, storage, and disposal of hazardous materials and to reduce the generation of hazardous materials, their evaporation into the air, and their disposal into the trash, sewers, and storm drains. (King County Board of Health Code 11.04.050)

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Hazardous Waste Management Program in King County

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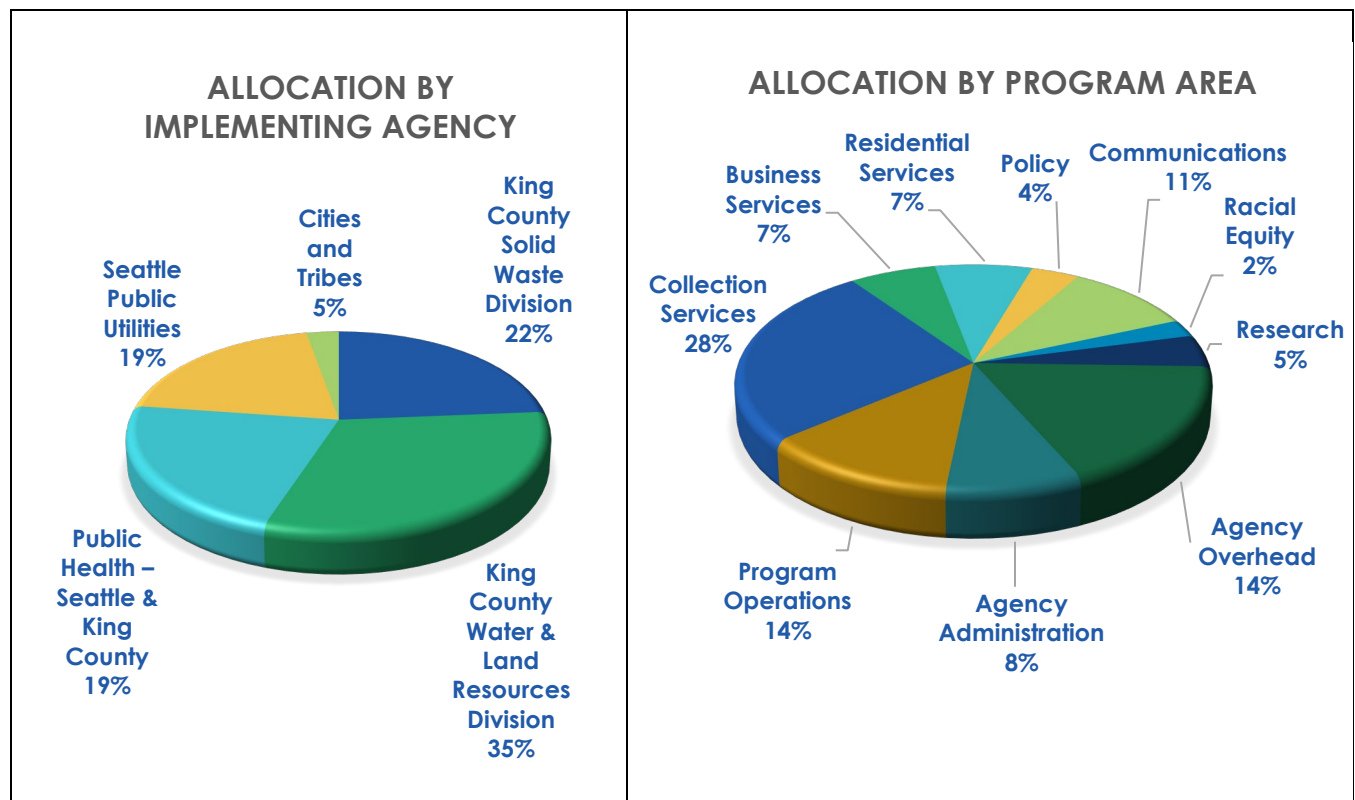
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I. Executive Summary

The Local Hazardous Waste Management Program in King County, commonly known as the Hazardous Waste Management Program (Haz Waste Program), is a multi-jurisdictional program whose mission is to protect and enhance public health and environmental quality throughout King County by reducing the threat posed by the production, use, storage, and disposal of hazardous materials.

In 2021, the Program plans to deliver services to King County residents and businesses at a total cost of \$21,670,805. Funding allocations to implementing agencies and among program areas are illustrated below.



The Haz Waste Program continues to focus on maximizing reach, impact, and equity:

- **Reach** – The delivery of services at a scale appropriate to the Program’s service area, which includes nearly 2.2 million people and 60,000 small quantity generator (SQG) businesses throughout King County.
- **Impact** – The effectiveness of the Program’s services to successfully achieve desired outcomes by enhancing evidence-based planning, service delivery, and evaluation.
- **Equity** – The provision of services equitably and in a culturally appropriate manner, incorporating strategies that are designed based upon project-specific needs.

Hazardous Waste Management Program Areas

The Haz Waste Program's work is comprised of eight major program areas.

1. Collection Services

Collection Services provides moderate risk waste (MRW) collection services to King County residents and small quantity generator (SQG) businesses. This program also manages grant funds to cities and tribes for collection and educational activities.

2. Business Services

The Business Services program focuses on improving safer practices for the use, handling, storage, and disposal of hazardous materials in SQG businesses. The team also encourages the use of safer alternatives to toxic products. Staff provide general technical assistance, targeted services, and respond to requests for assistance.

3. Residential Services

The Residential Services program focuses on improving safer practices for the use, handling, storage, and disposal of hazardous materials in residential settings. The team also implements strategies to encourage King County residents to use safer alternatives to toxic products. Staff provide targeted services, such as in-home assessments and training and responding to requests for assistance from King County residents.

4. Policy

The Policy program works to create systematic changes in the production, use, and disposal cycles of hazardous materials. The team looks for changes in formulation of hazardous materials and products and/or their discontinuation – as well as ways to increase producer responsibility.

5. Communications¹

The Communications program connects King County residents and SQGs with the Program's services and resources through marketing, public relations, community outreach, and customer service strategies. It is also responsible for building broad-scale awareness of hazardous materials, safer alternatives, and best management practices.

6. Research

The Research program provides critical support to programs and activities across the Program by providing expertise and consultation on technical and social science research and best practices throughout the design, implementation, and evaluation of Program services

7. Racial Equity¹

The Racial Equity program oversees implementation of the Hazardous Waste Management Program's Racial Equity Plan to ensure that the Program is reaching and serving all residents and businesses in King County. The Racial Equity program provides critical support to programs and activities across the Program by providing expertise and consultation on the application of racial equity best practices throughout the design, implementation, and evaluation of the Program's services.

8. Operations

All Haz Waste programs are supported by management activities to ensure effective operations, steward the Program's resources in fulfillment of its mission, and provide accountability to ratepayers. They include agency and Program administration, fund management, performance management, strategic planning, communications, intergovernmental and tribal relations, racial equity, and operations.

¹ Communications and Racial Equity programs both operate as functions of the Program Director's Office. Due to their close integration with other program areas their bodies of work are documented in both the Program Director's Office and line of business work summaries.

II. 2021 Financial Projections

Fees and Revenues

The Hazardous Waste Management Program 2021 fees and projected revenues are detailed below. The Program's fees are authorized under King County Board of Health Code 11.04.060.

2021 Program Fees	
	Rate
Sewer accounts (effective rate, average)	\$0.30/month
Private vehicle (transfer station or landfill trip)	\$2.12/trip
Commercial vehicle (transfer station or landfill trip)	\$5.54/ton
Single-family residential solid waste accounts	\$0.98/month
Commercial solid waste accounts: Tier 1 (≤ 0.48 cu. yds.)	\$1.71/month
Tier 2 (> 0.48 cu. yds. - < 10 cu. yds.)	\$14.06/month
Tier 3 (≥ 10 cu. yds.)	\$54.04/month

2021 Projected Revenues		
	Amount	Percent of Revenue
Solid waste account fees	\$10,496,524	62%
Transfer station fees	\$2,641,046	16%
Sewer fees	\$3,590,648	21%
Interest revenue	\$88,099	1%
Total 2021 revenue	\$16,816,317	100%
Fund balance drawdown ²	\$4,854,488	--
Total	\$21,670,805	--

Budget and Staff by Program Partner

2021 Budget and Staff Allocation by Program Partner			
Agency / Activity	Budget	FTEs	Percent of Budget
King County Solid Waste Division	\$4,830,412	10.25	22.3%
King County Water and Land Resources Division	\$7,646,984	29.00	35.3%
Public Health – Seattle & King County	\$4,185,305	18.00	19.3%
Seattle Public Utilities	\$4,004,977	11.95	18.5%
Cities and Tribes, Other	\$1,003,127	-	4.6%
Total	\$21,670,805	69.20	100%

² Fund balance use is consistent with the Haz Waste Program's multi-year rate strategy, which accrues reserves in early years of a rate period and expends them in later years.

III. 2021 Work Plan Highlights

In 2021, the Hazardous Waste Management Program will continue to increase its **reach, impact, and equity** in reducing human and environmental exposure to hazardous materials. The Program's goal is to deliver better, more effective services in fulfillment of our mission.

Greater Reach. The Haz Waste Program has a responsibility to provide broadly available services to King County's nearly 2.2 million residents and 60,000 SQG businesses. Ratepayers in the Program's service area should have access to relevant and effective information and services. Additionally, services such as policy changes are intended to reduce exposure risks to ratepayers. The Program's strategic communications will guide efforts to expand the Program's reach among King County residents and businesses. Objectives include: 1) connecting ratepayers with available services, including collection and disposal, information resources, technical assistance and incentives; 2) increasing public awareness about hazardous materials, best management practices, and safer alternatives; and 3) collaborating with cities, tribes, agency partners, and community organizations to expand and leverage information and engagement with residents and businesses across King County.

Greater Impact. The Haz Waste Program seeks to affect changes that ultimately reduce environmental and human exposure and the amount of hazardous materials used and discarded. The Program's ability to do this effectively depends upon prioritizing work and resources, understanding its service audiences, and utilizing tactics that achieve desired outcomes. Evidence- and community-based planning will increase the Program's effectiveness in the way it designs, delivers, and evaluates its services. The Program's policy initiatives focus on broadly impactful "upstream" changes related to hazardous materials and product stewardship.

Greater Equity. The Haz Waste Program is deeply committed to racial equity. The Program adopted Racial Equity Strategic and Implementation plans in 2018 and is currently implementing them. These plans outline specific objectives, performance measures, and strategic guidance to help advance racial equity goals throughout services and operations. Thoughtful and informed planning serves to ensure that Program services are designed, delivered, and evaluated equitably and in a culturally appropriate manner for ratepayers across King County. The Program is also committed to developing a workforce that reflects the diversity of King County, is well versed in the tenets of equity and social justice, and skilled in the use of equity tools and practices appropriate to their work.

The following provides an overview of the major activities planned in 2021 for each of the program areas.

Collection Services (16.05 FTEs, \$6,125,378)

The Collection Services program helps ensure that hazardous wastes from households and SQG businesses are managed to minimize impacts to the environment and human health. This includes providing convenient hazardous waste collection services year-round at four fixed facilities and through seasonal mobile Wastemobile services. Funding is also provided to support related city and tribal services throughout King County.

Goals:

1. Protect public and environmental health from improperly disposed of hazardous materials.
2. Increase diversion of non-toxic and low-hazard reusable hazardous waste materials.
3. Increase MRW facility usage by communities of color populations.
4. Support complementary hazardous waste services provided through partner cities, towns, and tribes.

2021 Work Includes:

- **Collection sites and Wastemobile:** Maintain four fixed hazardous waste collection sites (north Seattle, south Seattle, Factoria, and regular Wastemobile collection in Auburn) and a roving Wastemobile serving other cities and rural King County.
- **City and tribal grants:** Provide financial support to our city, town, and tribal partners to implement complementary moderate risk waste (MRW) collection and education programs.
- **Household hazardous waste reuse and non-profit support:** Collect and redistribute unused non-toxic and low hazard household products received at Program collection facilities to local non-profits and service organizations.
- **Capital facility improvement:** Planning for a co-located MRW collection facility at the new South County Recycling and Transfer Station.
- **Facilities and collection planning:** Begin scoping a study to 1) understand the changing moderate risk waste collections and facilities needs of Seattle and King County, specifically for Black, Indigenous, and People of Color (BIPOC) communities and 2) develop recommendations for future services and facilities needs.

Business Services (10.0 FTEs, \$1,544,212)

The Business Services program provides technical assistance, training, and incentives to reduce environmental and human exposures to hazardous materials by increasing adoption of best practices and compliance with hazardous materials management regulations.

Goals:

1. Business services are universally accessible to all SQG businesses in King County.
2. Reduce the risk of chemical exposures by helping businesses safely manage hazardous materials and choose safer alternatives.
3. Provide equitable business services and risk reduction to people of color, immigrant, and refugee customers in a culturally- and audience-appropriate manner.

2021 Work Includes:

- **Technical assistance:** Provide on-site and telephone consultations, trainings, and EnviroStar visits to SQG businesses on pollution prevention best management practices, safer alternatives, and regulatory conformance.
- **Financial incentives:** Provide up to \$599 and 75 percent of the costs to businesses to address hazardous materials issues. Vouchers are used to support businesses in adopting program-recommended pollution prevention best practices and safer alternatives.
- **Degreasers:** In partnership with Washington State Department of Ecology, provide technical assistance, recognition, and financial incentives to auto mechanics and technicians to use safer alternatives to solvent-based degreasers.
- **Racial equity:** Work with Racial Equity, Research, and Communications teams to develop a strategy to reach and provide relevant services to businesses that have BIPOC owners, high proportion of BIPOC employees, or are in areas with a high number of BIPOC residents.

Residential Services (9.0 FTEs, \$1,565,104)

The Residential Services program provides a suite of awareness, prevention, and intervention strategies focused on reducing hazardous materials exposures in and around single and multi-family homes. 2021 work specifically focuses on safer cleaning practices and lead.

Goals:

1. Reduce residential toxics exposures through awareness, prevention, and intervention strategies. Provide services equitably and in a culturally- and audience-appropriate manner.
2. Promote Residential Program services among communities with greatest risk of hazardous materials and toxics exposures.
3. Increase community capacity through community centered projects to develop culturally and evidence-based safer alternative strategies to mitigate residential exposures in King County communities.
4. Respond to identified/reported residential toxic exposures to reduce and/or eliminate sources, exposure pathways, and associated health impacts.

2021 Work Includes:

- **Community-centered education, in-home visits, and workshops:** Continue work with community partners to provide in-home education visits, workshops, and community outreach about safer cleaning products, safer alternatives, and healthy homes in Hispanic/LatinX, African, and Middle Eastern communities.
- **Lead projects:** Complete two projects in partnership with Environmental Health-Community Toxics Program (EHS-CT): 1) Conduct in-home lead evaluation and safer practice visits in pre-1978 homes occupied by children five years old or younger in South King County and 2) identify safer alternative options to leaded cookware, raise awareness, and deliver safer unleaded cookware to families, primarily of Afghani, Indian, and Punjabi descent, with elevated blood lead levels.
- **Community education:** Provide workshops, English as a second language classes, and peer training support on safer cleaning topics as requested by community partners.
- **Elevated blood lead case management:** Promote case management services with health care providers and conduct home investigations and follow-up for children with elevated blood lead levels.
- **Request for assistance:** Respond to identified/reported residential toxic exposures to reduce and/or eliminate sources, exposure pathways, and associated health impacts
- **Evaluation:** Provide systematic evaluation of Residential Services projects including data collection, analysis, and data visualization.

Policy (3.75 FTEs, \$891,581)

The Policy program is responsible for planning, developing, implementing, and maintaining the Haz Waste Program's policy initiatives. This includes research and development to evaluate feasibility and approaches, community-centered policy planning, partnership development, and a range of approaches and venues to advance policy initiatives. The team uses a variety of strategies to impact policy such as legislative change (from federal to individual cities), regulatory change (federal or state), executive orders and agency actions or policies

(federal to individual cities), chemicals criteria, marketplace change (product certification, retailer purchasing policies, economic incentives), and pilot programs.

Goals:

1. Develop and advocate for producer responsibility/product stewardship laws and regulations for hazardous materials to ensure that those who design, manufacture, sell, and use consumer products take responsibility for reducing negative impacts to the economy, environment, public health, and worker safety.
2. Develop and advocate for protective laws and regulations regarding chemical exposure, manufacturing, use, and disposal.
3. Increase use of safer alternatives to hazardous chemicals and products and prevent regrettable substitutes.
4. Engage communities in the development, analysis and implementation of Haz Waste Program policy initiatives.

2021 Work Includes:

- **Product stewardship:** Advance product stewardship initiatives, including battery stewardship legislation and exploring feasibility of product stewardship for all moderate risk wastes. Support implementation of the statewide paint product stewardship program in King County. Maintain and/or enhance existing product stewardship programs.
- **Policy initiatives:** Explore, comment on, develop, and implement policy and systems change initiatives related to priority chemical hazards affecting human health and the environment. Issues are drawn from the Program's current and former projects, community outreach, research on emerging issues, and current legislation. Current topics under exploration include standards for lead content in aluminum cookware, lead paint remediation, and per- and polyfluoralkyl substances (PFAS).
- **Dry cleaning:** Continue to lead an initiative in partnership with the Research team that provides grants and technical assistance to dry cleaners who are switching from PERC to professional wet cleaning. The program may need to adapt to meet changing needs in the industry due to COVID-19.
- **Community-centered policy development and implementation:** Work with the Racial Equity and Communications teams to engage affected communities (residents and businesses) to vet policy initiatives and to identify and/or develop future policy priorities.

Communications (7.8 FTEs, \$2,341,537)

The Communications program ensures that information related to the Haz Waste Program's services and resources is broadly accessible to King County's nearly 2.2 million residents and 60,000 SQG businesses, while also developing targeted information campaigns to support Program initiatives. Specific strategies reflect strategic communication best practices, are informed by audience research, and delivered in culturally- and audience-appropriate methods to effectively achieve desired outcomes. The Communications program manages all of the Program's marketing, information resources, and awareness building efforts regarding business services, collection services, policy initiatives, residential services, and Program-wide functions and initiatives. This includes supporting implementation of the Program's racial equity strategic plan and supporting the Program Director's Office. The team maintains a range of informational resources in accessible formats for the public and is responsible for marketing the Program's services and connecting ratepayers to available services.

Goals:

1. Develop a communications program that successfully advances Haz Waste Program goals and provides broad-scale strategic outreach to King County's 2.2 million residents and 60,000 SQG businesses.
2. Increase use of Haz Waste Program services and informational resources by connecting ratepayers with available services.
3. Make Haz Waste Program the preferred source for information and advice about purchase, storage, and disposal of hazardous products by increasing the Program's brand recognition and visibility.
4. Provide accessible, user-friendly information and on-line resources for a range of hazardous materials.
5. Ensure the Haz Waste Program provides opportunities for all communities by fully integrating equity and social justice practices into information and marketing initiatives.

2021 Work Includes:

- **Customer Service Improvement Project:** Upgrade accessibility and operations with the Haz Waste Program Call Center.
- **30-Year Anniversary:** Develop and implement events in 2021 to commemorate Haz Waste Program's 30th anniversary as a means to build the Program's brand and increase awareness.
- **Program service marketing and outreach:** Provide planned communications support including:
 - *Business Services marketing:* Planning and outreach with the Business Services team.
 - *Collection event promotions:* Promote the Program's three fixed facilities and year-round Wastemobile. This will include new tactics that leverage social media and target geographic areas and strategies to reach racial ethnic audiences living near events and services.
 - *Regional educational marketing:* Launch the second wave of the regional Guilt-Free KC campaign to educate people living and working in King County about collection and disposal services. Launch second phase of Ojo con el cloro Spanish Educational Marketing campaign to build awareness about safer cleaning options and toxic exposure to chemical cleaners.
 - *Residential Services outreach:* Develop communication strategy to support Residential Services.
- **City and government outreach:** Develop proactive strategies and coordinate on outreach to governments, policy, and other organizations.
- **Racial equity:** Convene a community workgroup that leverages community representatives to play a leadership role in implementing decisions that will inform the strategic communications plan five-year update.

Research (4.0 FTEs, \$975,789)

The Research program develops and maintains tools and expertise to more effectively prioritize, develop, and deliver program strategies to achieve desired outcomes. This includes evaluation of hazardous materials as well as conducting and interpreting audience research.

Goals:

- Ensure the Haz Waste Program's work is evidence-based and meeting the highest standards of technical and scientific quality

- Embed equity and social justice principles in the Haz Waste Program’s research work

2021 Work Includes:

- **Analysis and technical support:** Research, analyze, and synthesize information related to toxic chemicals, hazardous waste, safer alternatives, and exposure reduction to inform planning and intervention strategies. Current topics include investigating lead exposures from metal cookware, transitioning dry cleaners to wet cleaning, and identifying/implementing safer alternatives.
- **Racial equity:** Develop demographic collection tools, develop data hub for housing demographic data for Program use, and provide data to inform targeted universalism strategies and results-based accountability indicators.
- **Strategic support and training:** Provide expertise, research, and analysis to guide Haz Waste Program priorities and strategies, as well as training, tools, and resources for staff and community partners. Provide mentorship to staff and internship opportunities for early career researchers and support for the Program’s Management Plan update.
- **Quality assurance:** Ensure that Haz Waste Program work and outward facing materials are technically accurate and exhibit research integrity, high technical standards, and best practices for research.
- **Library services:** Provide literature reviews, library, and publication support to staff and the public. Manage the Program’s library and publication holdings.
- **Laboratory services:** Maintain the Program’s environmental laboratory for technical support.

Racial Equity (2.0 FTEs, \$457,704)

The Racial Equity program supports the Haz Waste Program in providing strategic direction and implementing policies and practices to embed racial and service equity in all Program operations and services.

2021 Work Includes:

- **Racial equity plan oversight:** Oversee the implementation and performance of the Racial Equity Strategic Plan and Racial Equity Implementation Plan across the Haz Waste Program.
- **Community partnerships:** Develop a community partnership model to support a comprehensive and coordinated approach to partnerships, appropriate for the Haz Waste Program and the communities we serve.
- **Workforce development:** Develop an applied learning plan for Haz Waste Program staff and the Management Coordination Committee (MCC) and deliver learning opportunities to build awareness and competency on racial justice.
- **Program support:** Provide program-specific consultation, support, tools, and resources to define and achieve racial and service equity goals and objectives within Haz Waste Program functions. Consultation will focus on providing Program-wide strategic planning and development of racial equity initiatives and priorities. It will be provided on a case-by-case basis by the Racial Equity team with priority given to needs that align with the Racial Equity Implementation Plan. This includes support for the Program’s Management Plan update.

Operations (16.6 FTEs, \$7,769,500)

This work ensures that the Haz Waste Program's resources and services are managed appropriately for the benefit of the Program's ratepayers, operations are coordinated and effective, resources are used appropriately, and that the Program is accountable, with comprehensive performance management and transparency.

Agency Administration (8.35 FTEs, \$1,702,270)

This includes management and support activities provided within the four implementing agencies including supervision, planning, financial management, administrative support, program oversight, monitoring agency overhead costs, and reporting. It includes agency participation on the Leadership Team and support of the Management Coordination Committee

Agency Overhead (\$2,947,972)

These costs are applied to the Program by the implementing partner agencies to cover direct and indirect costs associated with supporting Program staff.

Program Operations (8.25 FTEs, \$3,119,258)

This includes management of the overall Program in fulfillment of its mission. Staff provide Program-wide leadership; oversee financial planning and performance accountability; and ensure services are efficient, effective, relevant, and equitable for ratepayers. Specific functions include oversight of Program operations, performance management, fund management, organizational development, partnership structures, and strategic planning. Costs for the Program's information technology infrastructure are budgeted here.

2021 Work Includes:

- **Program management:** Manage Program strategic planning, oversight, decision-making, coordination accountability, and reporting. Support the business needs of the overall Program, its legal and financial structure, regulatory compliance, and its service delivery to ratepayers. Facilitate the operations and responsibilities of the MCC and support its individual members. Oversee management functions of the Director's Office and internal management processes and structures, including the application of the Racial Equity Strategic and Implementation plans.
- **Organizational development and operations:** Oversee workforce development, management structures, and administrative policies and procedures. Improve operational predictability through updated partner agreements. Advance Program workforce and workplace goals through collaboration with partner agencies in their staff management responsibilities. Support agency managers to improve coordination and effectiveness of staff management and engagement of partner agency leadership. Provide trainings in support of key Program priorities.
- **Performance management:** Oversee work planning, project management, performance measurement, and reporting. Initiate the development of a more meaningful and robust performance management system for the Program that uses equity-centered Results Based Accountability. Enhance line-of-sight between Program activities and mission fulfillment.
- **Financial management:** Develop budgets and financial forecasts, manage state grants, and provide technical support and training to agency staff. Manage quarterly billing and reimbursement requests; monitor, track, and report quarterly and annually on cash flow, revenue, and expenditures; QA/QC financial reports; update fund forecast; and all other financial management and planning activities.

- **Intergovernmental and tribal relations:** Oversee and implement biennial service agreements with partner agencies and grant contracts with cities and tribes. Strengthen coordination and working relationships with government partners.
- **Racial equity management:** Manage the Program’s racial equity work and initiatives including implementation of the Program’s Racial Equity Strategic Plan. Work with leadership and staff to be a racially-just organization that delivers effective services to residents and businesses of color.³
- **Communications:** Manage Haz Waste Program’s internal and external communications activities. Ensure communications developed throughout the Program are led by Haz Waste Program’s comprehensive plan, linked with other strategies across the Program, avoid duplication of effort, and closely connect with the valuing of its rate-paying customers.³
- **Special initiatives:** Sponsor and oversee the development and implementation of Program-wide initiatives. Initiatives in 2021 include:
 - *Racial equity implementation:* Oversee the application of recommendations from the Racial Equity Strategic and Implementation plans in current and future work plans and ensure those plans are operationalized.
 - *Management Plan update:* Complete the Program’s ten-year Management Plan update using a racial equity lens and the best practices of community-centered planning.
 - *Rates:* Analyze rate needs for the next rate period, which runs through 2022. Review alternatives and develop a rate adjustment proposal for Board of Health consideration in 2022.
 - *Operating structure:* Explore potential alternatives to the Program’s current four-agency staffing model.
 - *Collection services planning:* Scope a collection services planning effort to support current operations and analyze and meet future needs.
 - *Information technology:* Begin a business needs analysis and development of the Program’s technology and data infrastructure, including internal and external facing systems.
 - *Organizational Project Management Advancement:* Conclude this initiative with a plan for the Haz Waste Program’s sustained use of best practices for project management.

³ Racial Equity and Communications program managers are housed in the Director’s Office. They manage work and staff described earlier in this work plan.

IV. 2021 Spending Plan by Program Area and Agency

Hazardous Waste Program Area	KC Water and Land Resources	Public Health	KC Solid Waste	Seattle Public Utilities	Cities and Tribes, Other	2021 Revised Total
Collection Services						
FTEs			6.55	9.50		16.05
Salary			\$778,115	\$1,098,407		\$1,876,522
Non-Salary			\$2,120,554	\$1,280,175	\$763,127	\$4,163,856
Facility Improvements			\$25,000	\$60,000		\$85,000
Collection Services Subtotal			\$2,923,669	\$2,438,582	\$763,127	\$6,125,378
Business Services						
FTEs	8.00	2.00				10.00
Salary	\$1,107,201	\$275,511				\$1,382,712
Non-Salary	\$161,500					\$161,500
Business Services Subtotal	\$1,268,701	\$275,511				\$1,544,212
Residential Services						
FTEs	4.00	5.00				9.00
Salary	\$578,013	\$679,591				\$1,257,604
Non-Salary		\$307,500				\$307,500
Residential Services Subtotal	\$578,013	\$987,091				\$1,565,104
Policy						
FTEs	1.75	1.00	1.00			3.75
Salary	\$269,220	\$144,822	\$157,039			\$571,081
Non-Salary	\$320,500					\$320,500
Policy Subtotal	\$589,720	\$144,822	\$157,039			\$891,581
Communications						
FTEs	4.00	2.00	1.60	0.20		7.80
Salary	\$492,617	\$217,356	\$251,261	\$29,209		\$990,443
Non-Salary	\$75,000	\$10,250	\$1,098,934	\$166,910		\$1,351,094
Communications Subtotal	\$567,617	\$227,606	\$1,350,195	\$196,119		\$2,341,537
Research						
FTEs	2.00	2.00				4.00
Salary	\$476,953	\$311,999				\$788,952
Non-Salary	\$155,837	\$31,000				\$186,837
Research Subtotal	\$632,790	\$342,999				\$975,789

Hazardous Waste Program Area	KC Water and Land Resources	Public Health	KC Solid Waste	Seattle Public Utilities	Cities and Tribes, Other	2021 Revised Total
Racial Equity						
FTEs	1.00	1.00				2.00
Salary	\$120,935	\$164,144				\$285,079
Non-Salary		\$172,625				\$172,625
Racial Equity Subtotal	\$120,935	\$336,769				\$457,704
Operations						
Agency Administration						
FTEs	5.00	2.00	1.10	0.25		8.35
Salary	\$588,468	\$ 353,529	\$182,709	\$45,796		\$1,170,502
Travel and Training	\$23,200	\$14,400	\$9,600	\$3,200		\$50,400
WLRD Lan/KCIT Support	\$168,523					\$168,523
Other Non-Salary	\$259,245	\$24,600	\$29,000			\$312,845
Agency Administration Total	\$1,039,436	\$392,529	\$221,309	\$48,996		\$1,702,270
Program Administration						
FTEs	3.25	3.00		2.00		8.25
Salary	\$688,407	\$485,867		\$351,133		\$1,525,407
Program-wide KCIT	\$543,250					\$543,250
Management Plan Update	\$245,000					\$245,000
Strategic Initiatives	\$283,000			\$46,340	\$240,000	\$569,340
Other Non-Salary	\$165,661	\$70,600				\$236,261
Program Administration Total	\$1,925,318	\$556,467		\$397,473	\$240,000	\$3,119,258
Operations Subtotal	\$2,964,754	\$948,996	\$221,309	\$446,469	\$240,000	\$4,821,528
2021 Budget and Staffing Totals						
FTEs	29.00	18.00	10.25	11.95		69.20
Salary ⁴	\$4,321,814	\$2,632,819	\$1,369,124	\$1,524,545		\$9,848,302
Non-Salary ⁵	\$2,400,716	\$630,975	\$3,283,088	\$1,556,625	\$1,003,127	\$8,874,531
Agency Overhead ⁵	\$924,454	\$921,511	\$178,200	\$923,807		\$2,947,972
Total Budget	\$7,646,984	\$4,185,305	\$4,830,412	\$4,004,977	\$1,003,127	\$21,670,805

⁴ 2021 Projected salary savings are applied in KC Water and Land Resources.

⁵ 2021 King County Performance, Strategy, and Budget Office (PSB) adjustments are applied in: 1) KC Water and Land Resources Overhead and Non-Salary; and 2) Public Health Non-Salary.



2021 Hazardous Waste Management Plan
November 2021 Final



APPENDIX E. **Technical Research Summary**

2021 Hazardous Waste Management Plan

Hazardous Waste Management Program in King County

APPROVED AND ADOPTED BY
KING COUNTY BOARD OF HEALTH
NOVEMBER 2021

Prepared by
Hazardous Waste Management Program in King County
Cascadia Consulting Group, Inc.
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1 Overview and Key Findings



1.1 Overview

As part of our evidence-based planning approach, the project team devised a research strategy that sought to gather data about:

- The communities that live and work in King County
- Historic use and future demand for collection services
- Hazardous chemicals, products, and exposures
- Actions and performance metrics used by other programs

This *Technical Research Summary* compiles key data and analyses using the best available technical data, in order to move toward the Hazardous Waste Management Program's mission and vision.

A separate document, *Appendix F. Priority Community Research Summary*, compiles the best available community data and findings from community and staff focus groups.

1.2 Objectives

The objectives for the technical research are to gather and analyze evidence to inform the following decisions for the 2021 Hazardous Waste Management Plan (2021 Plan):

- Identify and prioritize chemical exposures and affected communities that projects and services should address over the next 10 years.
- Inform high-level decisions about which projects, services, and strategies to prioritize in the 2021 Plan over the next 10 years to improve our Program's reach, impact, and equity in delivering services.
- Inform metrics and milestones for measuring the Program's performance over the next 10 years.

The 2021 Plan also aims to meet minimum Washington State Department of Ecology (Ecology) requirements for analysis of current conditions, including:

- Projections of population, employment, and demand for collection services
- Moderate Risk Waste Inventory (household hazardous waste and small quantity generators)
- Hazardous Waste Inventory (dangerous waste generators, remedial action sites, transporters, facilities, zone designations)

1.3 Research Topics

Our Program should focus on the hazardous materials in King County that pose the greatest risks to residents, workers, and the environment now and in the foreseeable future—using an evidence-based, precautionary approach with a racial equity lens. To achieve these objectives, the technical research covered the following topics:

- Residential population demographics, trends, and projections
- Business and employment demographics, trends, and projections
- Residential and business customers served and quantities of wastes collected by our Program, including historic trends and future projections
- Hazardous material issues and chemicals of concern
- Approaches to collection, metrics, and education used by other programs
- Gaps in data and opportunities for future research

1.4 Our Approach

The project team compiled the best available information from many sources, including:

- U.S. Census Bureau data on residents, households, workers, and businesses
- State of Washington Employment Security Department data on employment
- King County Office of Economic and Financial Analysis data on employment
- Our Program's Moderate Risk Waste Database and annual reports
- Web-based research and phone interviews with programs located elsewhere
- Project team expertise and supplemental research regarding issues (hazardous chemicals, products, and exposures)

Our research and findings should be considered preliminary. The Program will need to conduct or obtain additional in-depth technical research, stakeholder research, and stakeholder input to implement the 2021 Plan over the next ten years.

1.5 Terminology

We recognize that grouping people and communities together ignores the wide range of lived experiences, individual identification preferences, and the different cultures of different identities. We also recognize the importance of not solely defining these groups as underserved, overburdened, and vulnerable.

In our research and throughout this document we have taken the following approach when referring to different communities:

- When citing existing research sources, use the term the source uses to accurately represent the data as we received it.
- When writing new content, use terms that our team agrees will best reflect our current understanding of the preferences of the community being discussed. In doing so, we acknowledge that in the future the terms we use may no longer be the preferred terms or may even become offensive. We will always attempt to use preferred terms at the moment we are writing.

In this document, we rely on existing data from the U.S. Census Bureau that uses the following terms:

- Gender: The Census Bureau collects binary data on sex (female and male) and does not currently collect data on gender identity.
- Race and Ethnicity: The Census Bureau reports race and ethnicity separately using limited categories. Additional information on ancestry (such as Algerian or German) is available to use in future analysis for specific efforts but was not reliable enough to use in projections.
 - Race categories:
 - White
 - Black or African American
 - American Indian and Alaska Native
 - Asian
 - Native Hawaiian and Other Pacific Islander
 - Some other race
 - Two or more races
 - Ethnicity categories:
 - Hispanic/Latino
 - Non-Hispanic/Latino

1.6 Key Findings

This section describes key findings from the technical research, with linked cross-references to relevant sections, tables, or figures that provide more detail. Separate sections present additional data and information not covered in this section:

Section 2. Residential Population Trends and Projections

Section 3. Businesses and Employment Trends and Projections

Section 4. Program Customers, Quantities, and Waste Types

Section 5. Priority Issues and Chemicals of Concern

Section 6. Research on Other Programs

Residential Population

Over the past decade, King County has been one of the [fastest growing counties](#) in the United States. However, growth slowed in 2018 and 2019 compared to previous years and is forecasted to continue to be slower than in the past. The overall county population is projected to rise by over 29% by between 2020 and 2040, but some groups are anticipated to grow faster than others (Table 2-4).

Overall, the Black, Indigenous, and people of color (BIPOC) population is projected to experience more growth than the White-alone non-Hispanic/Latino population (Table 2-4).

- The share of King County residents who are BIPOC increased from 34% of the population to 40% of the population between the 2006–2010 period and the 2014–2018 period (Table 2-2).
- Between 2020 and 2040, the non-BIPOC population is projected to grow by only 3% (Table 2-4). Projected growth is fastest for people who identify as:
 - Hispanic/Latino and White (increase by 102%).
 - Two or more races or a race not included in the Census and any ethnicity (increase by 88%).
 - Asian and any ethnicity (increase by 58%).
- The Hispanic/Latino population (of any race) is projected to grow at twice the rate of the rest of the population (increase by 56%) (Table 2-7).

Growth among children and females of child-bearing age (ages 15-44) is also projected to be greater for BIPOC than non-BIPOC populations.

- The number of BIPOC children is expected to grow by 48%, while the population of non-BIPOC children is expected to decrease by 8% (Table 2-9).
- Similarly, the number of BIPOC females of child-bearing age is projected to rise by 64%, while the number of non-BIPOC females of child-bearing age is expected to decrease by 11% (Table 2-10).

The percentage of county residents who speak a language other than English at home increased from 24% to 27% over the past decade (Table 2-12).

- Roughly 214,000 residents speak English less than “very well” (Table 2-13).
- Among residents who speak English less than “very well,” the largest groups currently are (Table 2-14):
 - People who speak Spanish at home (53,000).
 - People who speak Chinese, including Mandarin and Cantonese (41,000).
 - Residents who speak Vietnamese (21,000).

Historic Program data has shown that some households are less likely or less able to use collection services. We assembled data on these households:

- Overall, 10% of county households do not have access to vehicles (Table 2-17). Collection sites require customers to bring waste in a vehicle.
- Approximately 33% of households are in multifamily buildings with five or more units (Table 2-16). A Program survey in 2012 found that only 5% of customers using our collection services lived in this type of building.
- Overall, 43% of county households are occupied by renters (Table 2-18). A Program survey in 2012 found that only 8% of customers leased or rented their home.
- Overall, 10% of the county population that is not in the military or group living facility have a disability (Table 2-19).

Businesses and Employment

Overall, employment in King County is projected to increase by 16% between 2020 and 2030; however, growth varies among industry types (Table 3-3).

While manufacturing in King County is projected to decrease (decrease by 17%), other industries that typically use hazardous materials are projected to increase (Table 3-3):

- Other business services, which includes maintenance and services to buildings and dwellings (increase by 51%)
- Construction (25%)
- Education services (22%)
- Health services and social assistance (18%)
- Other services, which includes businesses providing personal care services, repair and maintenance, and dry cleaning and laundry (14%)
- Art, Entertainment, and Recreation (13%)
- Transportation and warehousing (10%)
- Accommodation and food services (9%)

We looked at the typical types of businesses using hazardous materials that we are authorized to serve. For these business types, we analyzed the number and the percentage of employees who are BIPOC (Table 3-1).

The below industries have a workforce with a high proportion of BIPOC workers (more than one third of employees) and a high number of BIPOC employees (approximately 2,500 or more).

Figure 1-1 Percentage of BIPOC employees in industries with risk of hazardous exposures

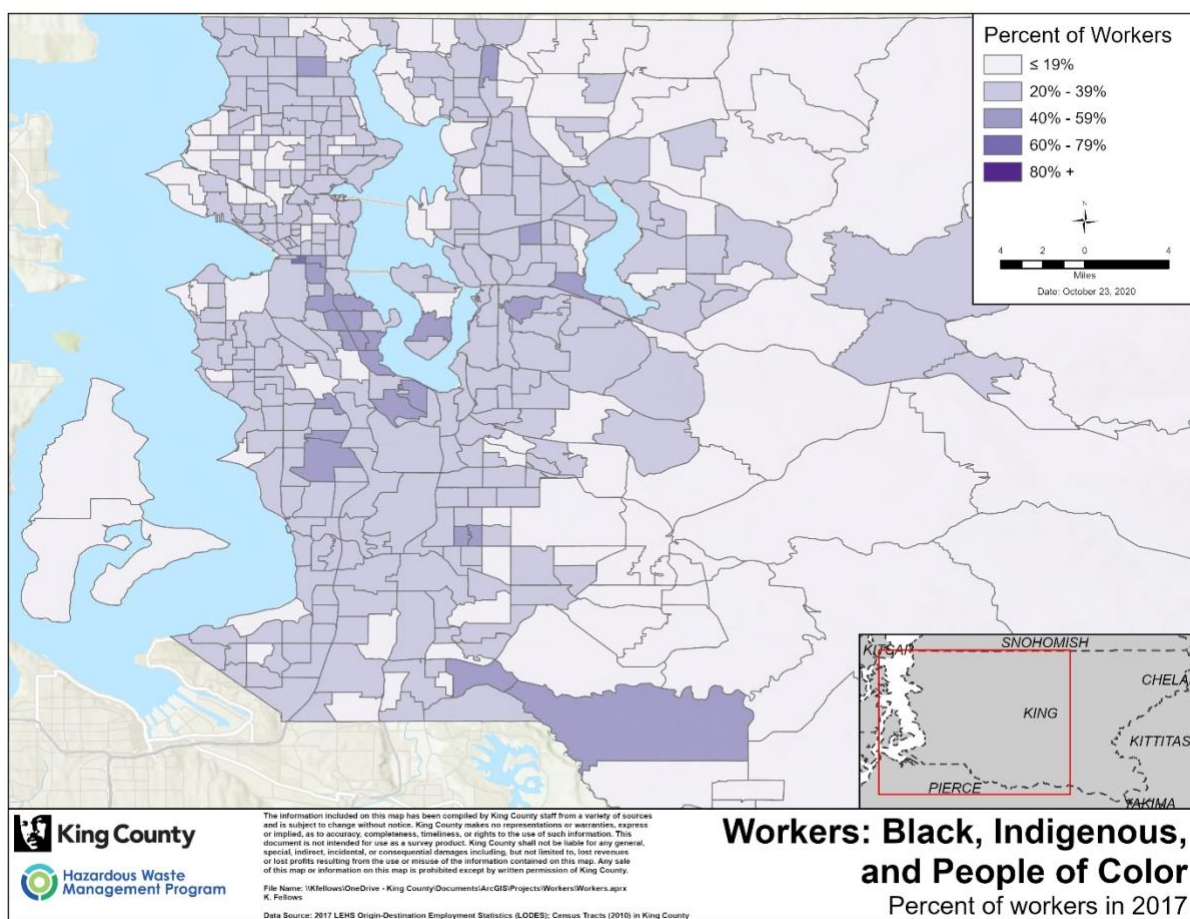


Data source for graphic: Census Bureau, Quarterly Workforce Indicators (4-digit NAICS codes), accessed August 2020. Employment counts are rounded.

The following map shows the percentages of workers in various parts of the county 38% who are BIPOC (regardless of industry).

- Jobs in South Seattle and just south of Seattle are more likely to be held by BIPOC workers than in other areas of the county.

Figure 1-2 Percentages of BIPOC employees in King County



The top five industries by number and percent of BIPOC ownership are (Table 3-2):

- Accommodation and food services (NAICS 72)
- Health care and social assistance (NAICS 62)
- Professional/scientific/technical services (NAICS 54)
- Retail trade (NAICS 44-45)
- Other services, except public administration (NAICS 81)

Residential Collection Service

In 2019, our Program collected 1,696 tons of Household Hazardous Waste (HHW) from 67,771 residential customers (Table 4-6 and Table 4-3). Countywide, approximately 3% of household residents used our collection services.

Between 2011 and 2019, the number of customers bringing residential waste increased by over 50% in total (from 44,269 in 2011 to 67,771 in 2019), much faster than the increase in the county's population (Table 4-3).

- The largest percentage growth was at the Auburn Wastemobile (5,370 customers, or 133% between 2011 and 2019), where our Program has expanded hours over the past decade.
- The North Seattle facility usage grew by the largest number of customers (18,786, or 80%, between 2011 and 2019).

Between 2011 and 2019, residential tonnages collected increased by over 20% in total (Table 4-6).

- The largest tonnage growth was at the North Seattle facility (138 tons, or 48%, between 2011 and 2019) and the Auburn Wastemobile (91 tons, or 49%, during that time).
- Tons collected at Factoria and the traveling Wastemobile held relatively steady, increasing by less than 5% between 2011 and 2019.

While both tonnages and customers have increased, each customer is bringing less hazardous waste for collection. Between 2011 and 2019, average pounds collected per customer decreased by 20% in total (Table 4-7).

- On average, our Program collected 48 pounds per customer in 2019, compared to 61 pounds in 2011.
- The largest declines were at Auburn Wastemobile (decrease of 33 pounds per customer, or 36%, between 2011 and 2019) and the traveling Wastemobile (decrease of 17 pounds per customer, or 27%, during the same period).

Small Quantity Generator Business Collection Service

In 2019, our Program collected 71 tons of moderate risk waste from 1,036 small quantity generator (SQG) business customers (Table 4-11 and Table 4-9).

Between 2011 and 2019, the number of business customers increased by 139% in total, from 434 in 2011 to 1,036 in 2019 (Table 4-9).

- The largest growth was at Factoria (increase of 169 customers, or 192%, between 2011 and 2019) and at South Seattle (221 customers, or 165%, during that time).

Between 2011 and 2019, moderate risk waste tonnages collected increased by 144% in total (Table 4-11).

- The largest tonnage growth was at South Seattle (17 tons, or 167%, between 2011 and 2019).
- Collection at the Auburn Wastemobile increased by less than one ton during that time.

Between 2011 and 2019, pounds collected per business visit held relatively steady, increasing by 2% in total (Table 4-12).

- On average, our Program collected 136 pounds per business customer in 2019 compared to 133 pounds in 2011.
- The largest growth was at the traveling Wastemobile (38 pounds, 32% between 2011 and 2019).
- Quantities collected per visit decreased at Factoria (decrease of 13 pounds, or 9%, between 2011 and 2019).

Overall Generation

Information is extremely limited on the amount of residential and SQG hazardous waste generated and on where it ends up. Based on our best available estimates (with rounding):

- Residents generated an estimated 10 to 20 thousand tons of hazardous waste in 2019, of which:
 - An estimated 10% to 15% was managed properly through Program-operated or Program-funded collection services.
 - An estimated 15% to 30% was improperly disposed of as garbage.

- An estimated 50% to 75% was stored, released to the environment, or disposed of through other unknown methods.
- SQG businesses generated an estimated 10 to 20 thousand tons of hazardous waste in 2019, of which:
 - An estimated 5% to 10% was managed properly through Program-funded or private collection services.
 - An estimated 10% to 20% was improperly disposed of as garbage.
 - An estimated 70% to 85% was stored, released to the environment, or disposed of through other unknown methods.

Priority Issues and Chemicals of Concern

We conducted an initial review of the hazardous materials that the environment, residents, and workers in King County and nationally could be exposed to. These materials included in-use products and chemicals as well as wastes. We narrowed this long list by considering several criteria based on our Program's Issue Development Framework (available upon request), including:

- Is the issue within our Program's domain?
- Is there evidence of exposures in King County to residents, workers, or the environment?
- Are solutions available to address the exposure?
- Are vulnerable populations or environmental receptors potentially impacted?

As a result of this review, several issues rose to the top, many of which we have worked on in the past. We included these issues because they still represent a threat to human health and/or the environment. The list of issues we generated is preliminary and will require:

- Additional research to confirm that we are authorized to work on these issues.
- Stakeholder input from our Program staff and the community on these and other issues.
- More in-depth research to assess which of these issues should be our highest priorities over the next 10 years.

Figure 1-3 Example hazardous products at home**Figure 1-4 Example industries with hazardous products and issues of concern**

Peer Programs

Overall, research on peer programs confirmed that our Program is a leader that other jurisdictions follow and look to for new ideas. Our research covered the following topic areas:

- **Metrics and performance measurement:** We did not identify major innovations among peer programs. Our plan to implement Results-Based Accountability is an important innovation that will keep us as a national leader in performance measurement.
- **Outreach and communication for customers who are BIPOC, speak languages other than English, or live in multifamily housing:** We did not identify major innovations among peer programs. Our *Racial Equity Strategic Plan* and efforts to implement it will keep us as a leader in this area. Oregon Metro, which includes Portland, also has a commitment to racial equity and could be a partner in this work.
- **Prevention and policy efforts:** We identified policies, regulations, technical assistance and incentives, outreach and behavior change, and communication efforts used by jurisdictions elsewhere to address priority issues and chemicals of concern that rose to the top during preliminary analysis.
- **Collection services:** Programs elsewhere offer additional types of collection services that may address barriers to collection by BIPOC residents, renters, residents of multifamily homes, and those without access to a vehicle. Alternative collection services include:
 - **Walk-up collection events** located near public transit.
 - **Retail-based collection** for specific materials that can be collected safely at these locations.
 - **Curbside collection** by solid waste collectors for specific materials such as batteries, motor oil, and CFLs.
 - **Other home-based collection** through collection kits that can be left curbside for special collection, partnerships with non-profit organizations to provide transportation, and visits by hazardous waste collection service staff.

Data Gaps and Opportunities for Future Research

We identified data gaps that limit our understanding of our Program's impact. Future research can deepen our understanding of:

- Who lives and works in King County, such as:
 - More detailed data on population demographics by characteristics including sexual orientation, gender identity, and ancestry.
 - Up-to-date and more detailed data on who is using collection services and who needs collection services.
- Hazardous materials exposures and releases in King County, such as:
 - Inventory of hazardous materials sold, used, and discarded.
 - Assessment of who is exposed and how they are affected, including labor conditions and related illnesses.
 - Assessment of releases to waterways, wildlife, and the environment, including chemical types, quantities, and pathways.
- Identification and implementation of safer alternative processes, products, and chemicals, such as:
 - Database of safer alternative products and processes.
 - Information on the barriers and motivators of individual communities related to the adoption of safer practices and alternatives.
- Performance measurement and metrics, such as:
 - Methods to measure progress toward our goal areas, including reducing racial inequities, hazardous exposures, hazardous waste, and environmental impacts.

2 Residential Population Trends and Projections



2.1 Overall Population

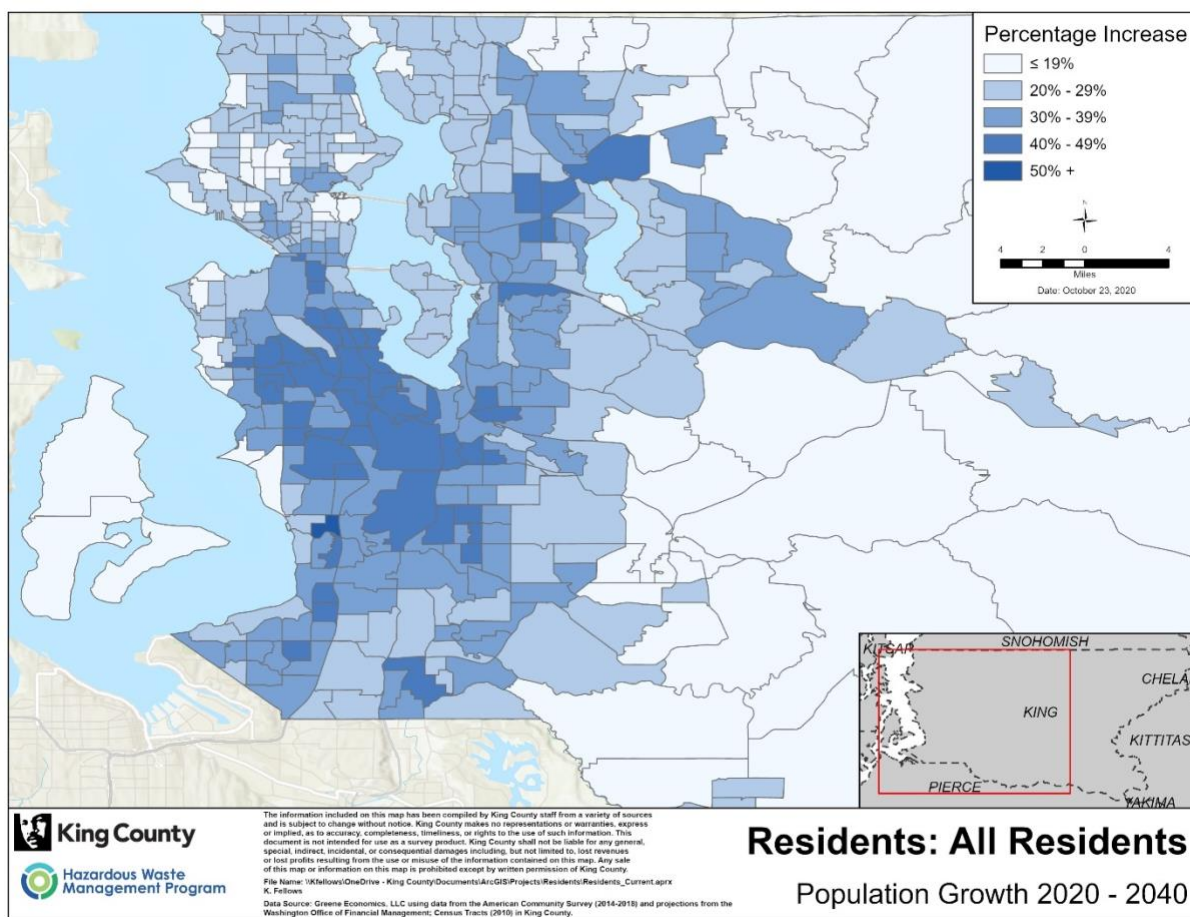
The cumulative growth rate from 2020 to 2040 is projected to be 29%.

Table 2-1 Overall count population: historic and projections

Population	2010	2020	2030	2040
County Total	1,879,189	2,248,623	2,593,657	2,910,992
Growth Rate from Previous Decade	N/A	+20%	+15%	+12%

Sources: 2010 data from 2010 Census 5-year estimates. 2020-2040 projections from Greene Economics, LLC using data from the American Community Survey (2014-2018) and Washington Office of Financial Management.

Figure 2-1 Projected percentage change in population from 2020 to 2040



2.2 Population by Race and Ethnicity

Historic Data

Table 2-2 Historic resident counts by race and ethnicity (one race alone)

Race and Ethnicity	2006-2010 ACS (counts)	2006-2010 ACS (percentages)	2014-2018 ACS (counts)	2014-2018 ACS (percentages)
AIAN alone (all ethnicities)	14,000	1%	14,000	1%
AIAN - Hispanic/Latino	2,000	0%	3,000	0%
AIAN - non-Hispanic/Latino	12,000	1%	11,000	1%
Asian alone (all ethnicities)	266,000	14%	371,000	17%
Asian - Hispanic/Latino	1,000	0%	2,000	0%
Asian - non-Hispanic/Latino	265,000	14%	369,000	17%
Black or African American alone (all ethnicities)	113,000	6%	136,000	6%
Black or African American - Hispanic/Latino	3,000	0%	3,000	0%
Black or African American - non-Hispanic/Latino	110,000	6%	133,000	6%
Native Hawaiian alone (all ethnicities)	13,000	1%	17,000	1%
Native Hawaiian - Hispanic/Latino	<1,000	0%	<1,000	0%
Native Hawaiian - non-Hispanic/Latino	13,000	1%	16,000	1%
White alone (all ethnicities)	1,331,000	71%	1,405,000	65%
White - Hispanic/Latino	86,000	5%	97,000	5%
White - non-Hispanic/Latino	1,245,000	66%	1,308,000	60%
Some other race alone (all ethnicities)	58,000	3%	85,000	4%
Some other race - Hispanic/Latino	52,000	3%	80,000	4%
Some other race - non-Hispanic/Latino	6,000	0%	5,000	0%
Two or more races (all ethnicities)	84,000	4%	136,000	6%
Two or more races - Hispanic/Latino	12,000	1%	21,000	1%
Two or more races - non-Hispanic/Latino	72,000	4%	115,000	5%
Total Population	1,879,000	100%	2,163,000	100%
<i>Total BIPOC (all except White non-Hispanic/Latino)</i>	634,000	34%	856,000	40%

Note: Individual race categories are for people who identified as one race alone and all ethnicities (e.g., Hispanic/Latino and non-Hispanic/Latino). Figures have been rounded to the nearest thousand and may not appear to sum to the subtotals. Percentages were calculated based on the non-rounded counts.

Sources: U.S. Census Bureau American Community Survey, Five-Year Estimates for 2006-2010 and 2014-2018.

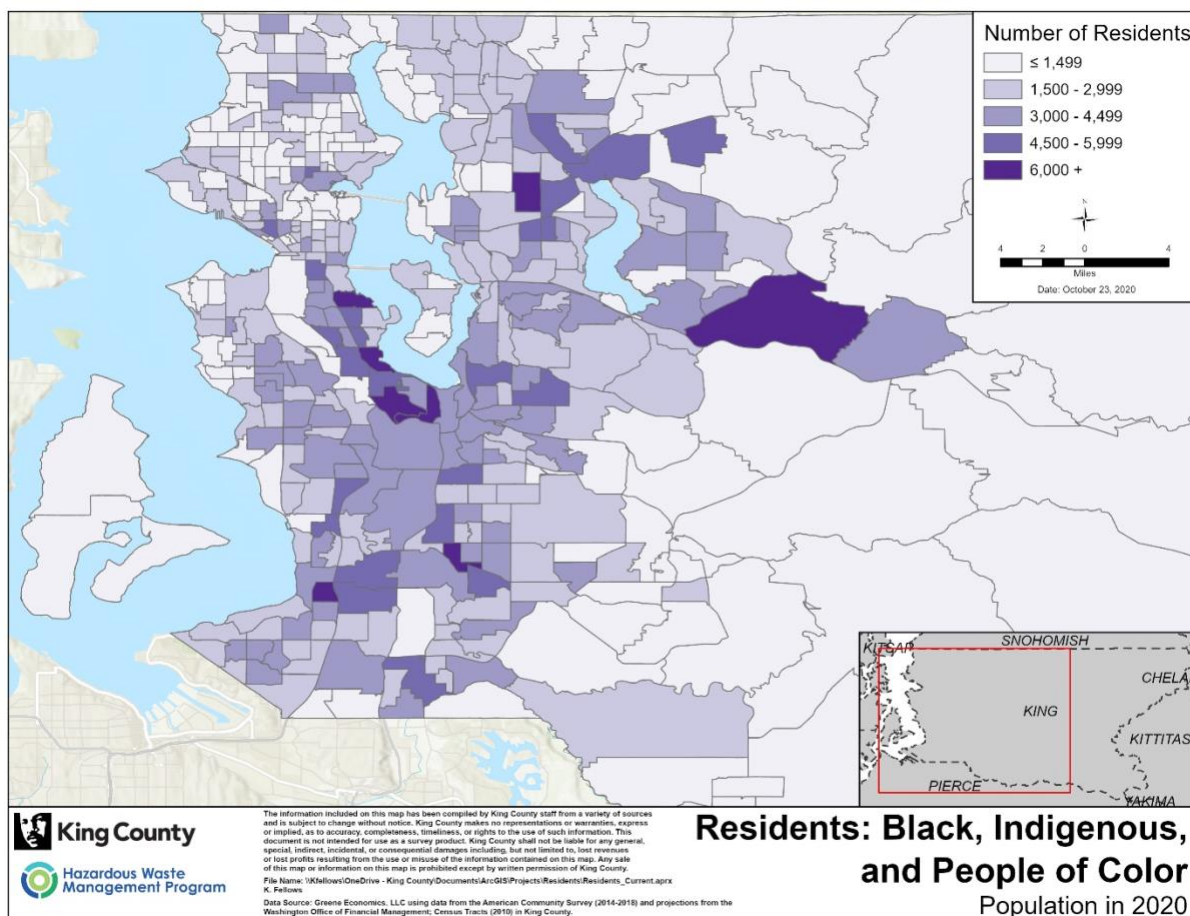
Figure 2-2 Projected population of BIPOC residents in 2020

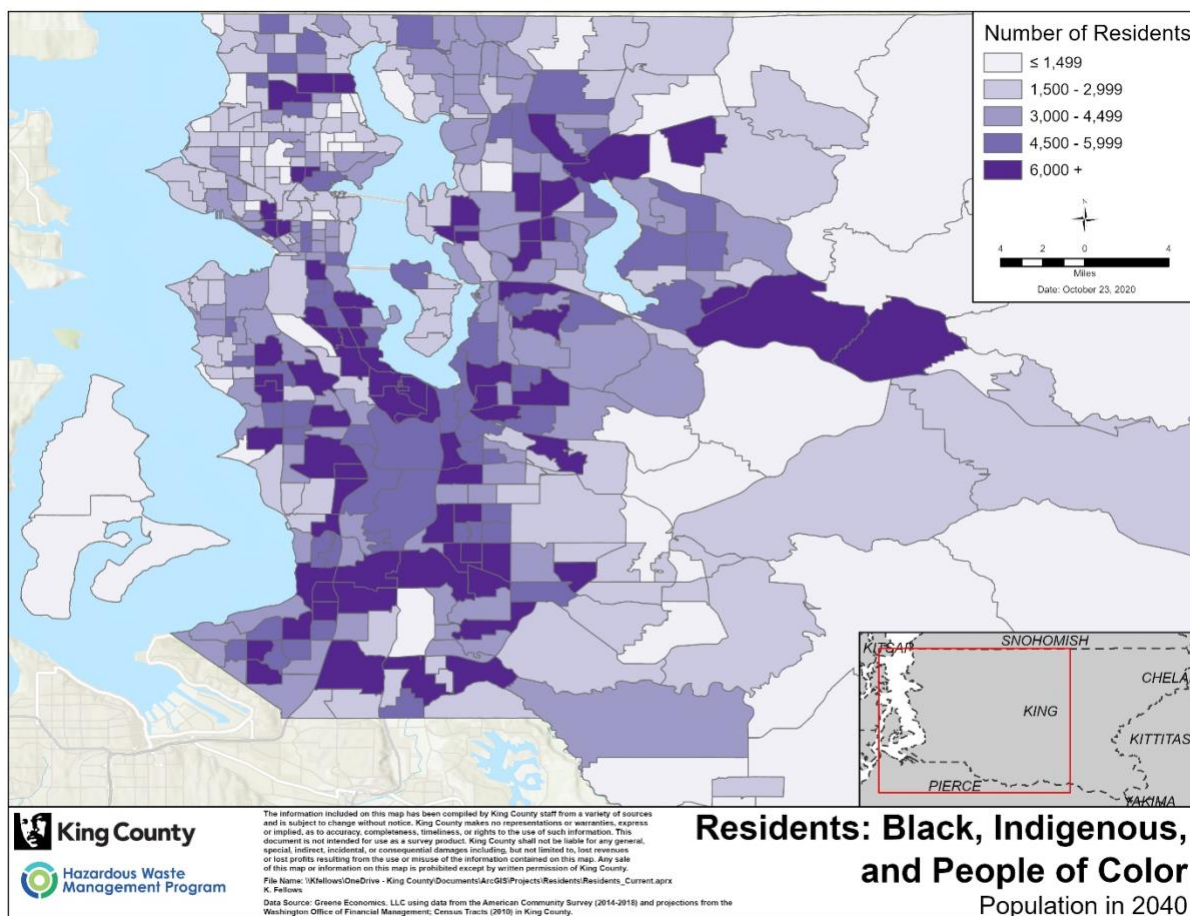
Figure 2-3 Projected population of BIPOC residents in 2040

Table 2-3 Historic resident counts by race (including multiple races)

Race	2006-2010 ACS (counts)	2006-2010 ACS (percentages)	2014-2018 ACS (counts)	2014-2018 ACS (percentages)
American Indian and Alaska Native	36,000	2%	45,000	2%
Asian	306,000	16%	440,000	20%
Black or African American	138,000	7%	178,000	8%
Native Hawaiian and Other Pacific Islander	21,000	1%	28,000	1%
White	1,404,000	75%	1,524,000	70%
Some other race	68,000	4%	100,000	5%
Total Population	1,879,000	100%	2,163,000	100%

Note: In this table, counts and percentages by race add up to greater than the total population because individuals who identify as two or more races are included in all rows representing their races. For example, a person who identifies as both Black or African American and White is included in both of those rows. Figures have been rounded to the nearest thousand and may not appear to sum to the subtotals. Percentages were calculated based on the non-rounded counts.

Sources: U.S. Census Bureau American Community Survey, Five-Year Estimates for 2006-2010 and 2014-2018.

Projections

To develop population forecasts for King County at the census tract level by the key demographics of race and ethnicity (including BIPOC), sex, and age groups, we started with the American Community Survey (ACS) 2014–2018 5-Year Estimates data from the U.S. Census Bureau. While ACS does not provide population projections, it is considered the best source of current population estimates by census tract and key demographics. To estimate population growth rates by racial and ethnic group (including BIPOC), sex, and age groups, we applied statewide projections estimates from the Washington State Office of Financial Management and to ACS population estimates for King County census tracts. Using this methodology, population projections were developed for all these groups at the census tract level for all of King County for 2030 and 2040.

Table 2-4 Resident projections by race (counts)

Race	2020 (counts)	2030 (counts)	2040 (counts)	Percent Growth 2020-2040
American Indian and Alaska Native	14,000	16,000	18,000	+25%
Asian	403,000	524,000	637,000	+58%
Black or African American	143,000	170,000	197,000	+38%
Native Hawaiian and Other Pacific Islander	18,000	22,000	27,000	+49%
White (Total)	1,432,000	1,525,000	1,582,000	+10%
White (Hispanic/Latino)	108,000	161,000	218,000	+102%
White (non-Hispanic/Latino)	1,323,000	1,364,000	1,364,000	+3%
Some other race or two or more races	239,000	336,000	451,000	+88%
Total Population	2,249,000	2,594,000	2,911,000	+29%

Note: Individual race categories are for people who identified as one race alone and all ethnicities (e.g., Hispanic/Latino and non-Hispanic/Latino). For this project, projections by race and ethnicity were created only for the White Non-Hispanic/Latino population. Figures have been rounded to the nearest thousand and may not appear to sum to the subtotals. Percentages were calculated based on the non-rounded counts.

Sources: Greene Economics, LLC using data from the American Community Survey (2014-2018) and Washington Office of Financial Management.

Table 2-5 Resident projections by race (percentage of population)

Race	2020 (percentage)	2030 (percentage)	2040 (percentage)
American Indian and Alaska Native	1%	1%	1%
Asian	18%	20%	22%
Black or African American	6%	7%	7%
Native Hawaiian and Other Pacific Islander	1%	1%	1%
White (Total)	64%	59%	54%
White (Hispanic/Latino)	5%	6%	7%
White (Non-Hispanic/Latino)	59%	53%	47%
Some other race	11%	13%	15%
Total Population	100%	100%	100%

Note: Individual race categories are for people who identified as one race alone and all ethnicities (e.g., Hispanic/Latino and non-Hispanic/Latino). For this project, projections by race and ethnicity were created only for the White Non-Hispanic/Latino population.

Sources: Greene Economics, LLC using data from the American Community Survey (2014-2018) and Washington Office of Financial Management.

Table 2-6 Historic resident counts by ethnicity

Ethnicity	2006-2010	2006-2010	2014-2018	2014-2018
	ACS (counts)	ACS (percentages)	ACS (counts)	ACS (percentages)
Hispanic/Latino	156,000	8%	207,000	10%
Not Hispanic/Latino	1,723,000	92%	1,957,000	90%
Total Population	1,879,000	100%	2,163,000	100%

Note: This table shows population by ethnicity, regardless of race. Figures have been rounded to the nearest thousand and may not appear to sum to the subtotals. Percentages were calculated based on the non-rounded counts.

Sources: U.S. Census Bureau American Community Survey, Five-Year Estimates for 2006–2010 and 2014–2018.

Table 2-7 Resident projections by ethnicity (counts)

Ethnicity	2020	2030	2040	Percent Growth
	(counts)	(counts)	(counts)	2020-2040
Hispanic/Latino	220,000	281,000	344,000	+56%
Not Hispanic/Latino	2,029,000	2,313,000	2,567,000	+27%
Total Population	2,249,000	2,594,000	2,911,000	+29%

Note: This table shows population by ethnicity, regardless of race. Figures have been rounded to the nearest thousand and may not appear to sum to the subtotals. Percentages were calculated based on the non-rounded counts.

Sources: Greene Economics, LLC using data from the American Community Survey (2014-2018) and Washington Office of Financial Management.

Table 2-8 Resident projections by ethnicity (percentage of population)

Ethnicity	2020	2030	2040
	(percentage)	(percentage)	(percentage)
Hispanic/Latino	10%	11%	12%
Not Hispanic/Latino	90%	89%	88%
Total Population	100%	100%	100%

Note: This table shows population by ethnicity, regardless of race.

Sources: Greene Economics, LLC using data from the American Community Survey (2014-2018) and Washington Office of Financial Management.

2.3 Population by Age, Sex, and Race

Table 2-9 Projected counts and percentage of children (under age 18)

Population Characteristics	2020	2030	2040	Percent Growth 2020-2040
BIPOC				
Count of BIPOC children	247,000	307,000	366,000	+48%
Percentage of BIPOC population	27%	25%	24%	
White Non-Hispanic/Latino				
Count of White Non-Hispanic/Latino children	214,000	205,000	196,000	-8%
Percentage of White Non-Hispanic/Latino population	16%	15%	14%	
Total Children in County	460,000	512,000	561,000	+22%
Percent of Total County Population	20%	20%	19%	

Note: Figures have been rounded to the nearest thousand and may not appear to sum to the subtotals. Percentages were calculated based on the non-rounded counts.

Sources: Greene Economics, LLC using data from the American Community Survey (2014-2018) and Washington Office of Financial Management.

Table 2-10 Projected counts and percentage of females of childbearing age (ages 15-44)

Population Characteristics	2020 (counts)	2030 (counts)	2040 (counts)	Percent Growth 2020-2040
BIPOC				
Count of BIPOC females 15-44	227,000	303,000	373,000	+64%
Percentage of BIPOC population	25%	25%	24%	
White Non-Hispanic/Latino				
Count of White Non-Hispanic/Latino females 15-44	259,000	250,000	229,000	-11%
Percentage of White Non-Hispanic/Latino population	20%	18%	17%	
Total Females 15-44 in County	485,000	553,000	602,000	+24%
Percent of Total County Population	22%	21%	21%	

Note: "Females" refers to the Census sex designation and not gender identity. Figures have been rounded to the nearest thousand and may not appear to sum to the subtotals. Percentages were calculated based on the non-rounded counts.

Sources: Greene Economics, LLC using data from the American Community Survey (2014-2018) and Washington Office of Financial Management.

Table 2-11 Historic resident counts by U.S. vs. foreign born or immigrant/refugee status

Place of Birth	2006-2010 ACS (counts)	2006-2010 ACS (percentages)	2014-2018 ACS (counts)	2014-2018 ACS (percentages)
Foreign Born	373,000	20%	487,000	23%
Born in U.S. or Puerto Rico	1,506,000	80%	1,676,000	77%
Total Population	1,879,000	100%	2,163,000	100%

Notes: Figures have been rounded to the nearest thousand and may not appear to sum to the subtotals. Percentages were calculated based on the non-rounded counts.

Sources: U.S. Census Bureau American Community Survey, Five-Year Estimates for 2006–2010 and 2014–2018.

2.4 Population by Language Spoken at Home

Table 2-12 Historic resident counts by language spoken at home

Language Spoken at Home	2006-2010 ACS (counts)	2006-2010 ACS (percentages)	2014-2018 ACS (counts)	2014-2018 ACS (percentages)
Spanish	111,000	6%	132,000	7%
Other Indo-European languages	101,000	6%	135,000	7%
Asian and Pacific Islander languages	185,000	10%	237,000	12%
Other languages	32,000	2%	49,000	2%
English only	1,334,000	76%	1,482,000	73%
Total Population Age 5 years and Older	1,762,000	100%	2,035,000	100%

Note: This table includes only people ages five years and older. Figures have been rounded to the nearest thousand and may not appear to sum to the subtotals. Percentages were calculated based on the non-rounded counts.

Sources: U.S. Census Bureau American Community Survey, Five-Year Estimates for 2006–2010 and 2014–2018.

Table 2-13 Historic population by language spoken at home and ability to speak English

Language Spoken at Home	2006-2010 ACS (counts)	2006-2010 ACS (percentages)	2014-2018 ACS (counts)	2014-2018 ACS (percentages)
Total speaks English less than "very well"	193,000	11%	214,000	11%
Spanish	55,000	3%	53,000	3%
Other Indo-European languages	33,000	2%	36,000	2%
Asian and Pacific Islander languages	91,000	5%	105,000	5%
Other languages	15,000	1%	20,000	1%
Total speaks English only or "very well"	1,569,000	89%	1,821,000	89%
English only	1,334,000	76%	1,482,000	73%
A language other than English	235,000	13%	339,000	17%
Total Population Age 5 years and Older	1,762,000	100%	2,035,000	100%

Note: This table includes only people ages five years and older. Figures have been rounded to the nearest thousand and may not appear to sum to the subtotals. Percentages were calculated based on the non-rounded counts.

Sources: U.S. Census Bureau American Community Survey, Five-Year Estimates for 2006–2010 and 2014–2018.

Table 2-14 Historic population by detailed language spoken at home and ability to speak English

2014-2018 ACS Language spoken at home	Total Speakers (count)	Total Speakers (percent of population)	Speaks English less than “very well” (count)	Speaks English less than “very well” (percentage of total speakers)
Speak only English	1,482,000	73%	NA	NA
Spanish	132,000	7%	53,000	40%
Chinese (incl. Mandarin, Cantonese)	82,000	4%	41,000	50%
Russian, Polish, or other Slavic languages	39,000	2%	16,000	41%
Vietnamese	36,000	2%	21,000	58%
Tagalog (incl. Filipino)	28,000	1%	10,000	37%
Korean	21,000	1%	10,000	47%
French, Haitian, or Cajun	12,000	1%	2,000	14%
German or other West Germanic languages	11,000	1%	1,000	8%
Arabic	9,000	0%	3,000	40%
Other Indo-European languages	73,000	4%	17,000	24%
Other Asian and Pacific Island languages	70,000	3%	23,000	33%
Other and unspecified languages	41,000	2%	16,000	40%
County Total	2,035,000	100%	214,000	11%

Note: This table includes only people ages five years and older. Figures have been rounded to the nearest thousand and may not appear to sum to the subtotals. Percentages were calculated before rounding the figures. The margin of error for ability to speak English is 20-25% for the following languages: French, Haitian, or Cajun; German or other West Germanic languages; and Arabic.

Sources: U.S. Census Bureau American Community Survey, One-Year Estimates for 2019.

Table 2-15 Historic detailed languages spoken at home in King County, 2019

Language spoken at home	2019 ACS Total Speakers (count)	2019 ACS Total Speakers (percentage of population)	2019 ACS Total Speakers (relative standard error flags)
Speak only English	1,499,000	71%	
Spanish	154,000	7%	
Chinese (incl. Mandarin, Cantonese)	99,000	5%	
Vietnamese	41,000	2%	
Amharic, Somali, or other Afro-Asiatic languages	35,000	2%	
Hindi	27,000	1%	
Tagalog (incl. Filipino)	25,000	1%	
Korean	24,000	1%	
Russian	19,000	1%	
Japanese	16,000	1%	

Language spoken at home	2019 ACS Total Speakers (count)	2019 ACS Total Speakers (percentage of population)	2019 ACS Total Speakers (relative standard error flags)
Telugu	13,000	1%	
French (incl. Cajun)	13,000	1%	
Arabic	13,000	1%	
Ukrainian or other Slavic languages	11,000	0%	
Ilocano, Samoan, Hawaiian, or other Austronesian languages	11,000	0%	
Persian (incl. Farsi, Dari)	9,000	0%	RSE>30%
Punjabi	9,000	0%	
Tamil	9,000	0%	
German	8,000	0%	RSE>30%
Swahili or other languages of Central, Eastern, and Southern Africa	8,000	0%	RSE>30%
Malayalam, Kannada, or other Dravidian languages	7,000	0%	RSE>30%
Thai, Lao, or other Tai-Kadai languages	7,000	0%	
Khmer	6,000	0%	RSE>30%
Nepali, Marathi, or other Indic languages	6,000	0%	RSE>30%
Urdu	6,000	0%	RSE>30%
Hebrew	4,000	0%	RSE>30%
Yoruba, Twi, Igbo, or other languages of Western Africa	4,000	0%	RSE>30%
Haitian	4,000	0%	RSE>50%
Polish	3,000	0%	RSE>50%
Gujarati	3,000	0%	RSE>50%
Portuguese	3,000	0%	RSE>50%
Serbo-Croatian	2,000	0%	RSE>30%
Bengali	2,000	0%	RSE>50%
Hmong	2,000	0%	RSE>30%
Italian	2,000	0%	RSE>50%
Yiddish, Pennsylvania Dutch, or other West Germanic languages	1,000	0%	RSE>50%
Armenian	1,000	0%	RSE>50%
Greek	1,000	0%	RSE>30%
Other Indo-European languages	9,000	0%	RSE>50%
Other languages of Asia	5,000	0%	RSE>50%
Other Native languages of North America	2,000	0%	RSE>50%
Other and unspecified languages	2,000	0%	RSE>30%
County Total	2,125,000	100%	

Note: This table includes only people ages five years and older. Figures have been rounded to the nearest thousand and may not appear to sum to the subtotals. Percentages and relative standard errors were calculated before rounding the figures. For languages whose relative standard error is relatively high, results should be interpreted with caution.

Sources: U.S. Census Bureau American Community Survey, One-Year Estimates for 2019.

2.5 Housing Type

Note: Data sets previously used to project the growth in single-family versus multifamily units are no longer available. In addition, likely changes in housing policy to address the affordability crisis make projections difficult.

Table 2-16 Historic single-family vs. multifamily household counts

	2006-2010 ACS (counts)	2006-2010 ACS (percentages)	2014-2018 ACS (counts)	2014-2018 ACS (percentages)
Households				
1 unit (attached or detached)	499,000	60%	536,000	58%
2 to 4 units	53,000	6%	53,000	6%
5 to 19 units	123,000	15%	123,000	13%
20 or more units	143,000	17%	187,000	20%
Other (mobile home, boat, RV, van, etc.)	18,000	2%	18,000	2%
Total Housing Units	836,000	100%	918,000	100%

Note: This table includes occupied and unoccupied housing units. Figures have been rounded to the nearest thousand and may not appear to sum to the subtotals. Percentages were calculated based on the non-rounded counts.

Sources: U.S. Census Bureau American Community Survey, Five-Year Estimates for 2006–2010 and 2014–2018.

Table 2-17 Historic households by access to vehicles

	2006-2010 ACS (counts)	2006-2010 ACS (percentages)	2014-2018 ACS (counts)	2014-2018 ACS (percentages)
Households				
No vehicles	70,000	9%	87,000	10%
1 vehicle	276,000	35%	297,000	34%
2 vehicles	288,000	37%	318,000	37%
3 vehicles	148,000	19%	164,000	19%
Total Occupied Housing Units	782,000	100%	866,000	100%

Note: This table includes only occupied housing units. Figures have been rounded to the nearest thousand and may not appear to sum to the subtotals. Percentages were calculated based on the non-rounded counts.

Sources: U.S. Census Bureau American Community Survey, Five-Year Estimates for 2006–2010 and 2014–2018.

Table 2-18 Historic households by renter or owner occupancy

Households	2006-2010 ACS (counts)	2006-2010 ACS (percentages)	2014-2018 ACS (counts)	2014-2018 ACS (percentages)
Renter-occupied	313,000	40%	371,000	43%
Owner-occupied	469,000	60%	494,000	57%
Total Occupied Housing Units	782,000	100%	866,000	100%

Note: This table includes only occupied housing units. Figures have been rounded to the nearest thousand and may not appear to sum to the subtotals. Percentages were calculated based on the non-rounded counts.

Sources: U.S. Census Bureau American Community Survey, Five-Year Estimates for 2006–2010 and 2014–2018.

The 2020 Point-in-Time Count for Seattle and King County found 11,751 people experiencing homelessness, of whom 53% were sheltered and 47% were unsheltered. Additional details on people surveyed for this count can be found in the Seattle/King County [Point-in-Time Count of Individuals Experiencing Homelessness by All Home](#).

2.6 Other Social and Economic Factors

Table 2-19 Historic disability status of civilian non-institutionalized population, 2014-2018

Civilian Non-Institutionalized Population	2014-2018 ACS Total Population (counts)	2014-2018 ACS With Disability (counts)	2014-2018 ACS With Disability (percentages)
Under 18 years	445,000	12,000	3%
18 to 64 years	1,436,000	106,000	7%
65 years and over	269,000	87,000	32%
Total Civilian Non-Institutionalized	2,150,000	205,000	10%

Note: This table includes only people who are not in the military and not in institutions such as nursing homes, dormitories, prisons, or other group housing. Figures have been rounded to the nearest thousand and may not appear to sum to the subtotals. Percentages were calculated based on the non-rounded counts.

Sources: U.S. Census Bureau American Community Survey, Five-Year Estimates for 2014–2018.

3 Businesses and Employment Trends and Projections



3.1 Current Employees by Industry and Race/Ethnicity

Table 3-1 shows current employment information for industries that typically use hazardous materials and are often small quantity generators. The table includes both the approximate number and percentage of employees who are identified as BIPOC, and the total number of employees.

We also conducted additional analyses of workers' demographics that are available in separate Excel spreadsheets. These demographics include:

- Age group, sex, and education by 4-digit NAICS code level from the Quarterly Workforce Indicators.
- Citizenship status, place of birth (in United States or foreign born), non-English language spoken at home, and female of reproductive age by 3-digit NAICS code from the American Community Survey.

Table 3-1 Number and percentage of BIPOC employees by industry type

Industry Type and Code	Number of BIPOC Employees	Percentage of Employees who are BIPOC	Total Number of Employees
General Medical and Surgical Hospitals (NAICS 6221)	18,200	38%	47,600
Elementary and Secondary Schools (NAICS 6111)	13,400	25%	53,600
Traveler Accommodation (NAICS 7211)	9,200	57%	16,100
Services to Buildings and Dwellings (NAICS 5617)	7,600	49%	15,500
Continuing Care Retirement Communities and Assisted Living Facilities for the Elderly (NAICS 6233)	7,100	58%	12,200
Offices of Physicians (NAICS 6211)	6,900	36%	19,200
Outpatient Care Centers (NAICS 6214)	5,800	41%	14,000
Building Finishing Contractors (NAICS 2383)	4,900	39%	12,500
Personal Care Services (NAICS 8121)	4,500	49%	9,100
Architectural, Engineering, and Related Services (NAICS 5413)	4,400	23%	19,300
Other Amusement and Recreation Industries (NAICS 7139)	4,300	30%	14,500
Child Day Care Services (NAICS 6244)	4,100	44%	9,300
Scientific Research and Development Services (NAICS 5417)	4,000	31%	12,900
Offices of Dentists (NAICS 6212)	3,500	34%	10,200
Activities Related to Real Estate (NAICS 5313)	3,500	30%	11,800
Justice, Public Order, and Safety Activities (NAICS 9221)	3,200	33%	9,600
Nursing Care Facilities (Skilled Nursing Facilities) (NAICS 6231)	3,200	56%	5,700

Industry Type and Code	Number of BIPOC Employees	Percentage of Employees who are BIPOC	Total Number of Employees
Offices of Other Health Practitioners (NAICS 6213)	2,900	29%	10,000
Residential Building Construction (NAICS 2361)	2,900	26%	11,000
Other Personal Services (NAICS 8129)	2,500	44%	5,700
Nonresidential Building Construction (NAICS 2362)	2,500	23%	10,700
Other Miscellaneous Store Retailers (NAICS 4539)	2,300	29%	7,800
Junior Colleges (NAICS 6112)	2,300	33%	7,000
Automotive Repair and Maintenance (NAICS 8111)	2,000	32%	6,200
Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities (NAICS 6232)	1,900	56%	3,400
Other Professional, Scientific, and Technical Services (NAICS 5419)	1,400	23%	6,100
Other Miscellaneous Manufacturing (NAICS 3399)	1,300	30%	4,400
Warehousing and Storage (NAICS 4931)	1,300	36%	3,600
Other Specialty Trade Contractors (NAICS 2389)	1,300	27%	4,800
Printing and Related Support Activities (NAICS 3231)	1,100	37%	3,000
Medical and Diagnostic Laboratories (NAICS 6215)	1,100	39%	2,800
Dry Cleaning and Laundry Services (NAICS 8123)	1,000	56%	1,800
Miscellaneous Durable Goods Merchant Wholesalers (NAICS 4239)	700	29%	2,400
Psychiatric and Substance Abuse Hospitals (NAICS 6222)	600	50%	1,200
Jewelry, Luggage, and Leather Goods Stores (NAICS 4483)	400	36%	1,100
Commercial and Industrial Machinery and Equipment Rental and Leasing (NAICS 5324)	400	25%	1,600
Machine Shops; Turned Product; and Screw, Nut, and Bolt Manufacturing (NAICS 3327)	300	21%	1,400
Ship and Boat Building (NAICS 3366)	200	25%	800
Personal and Household Goods Repair and Maintenance (NAICS 8114)	200	25%	800
Household and Institutional Furniture and Kitchen Cabinet Manufacturing (NAICS 3371)	200	33%	600
Greenhouse, Nursery, and Floriculture Production (NAICS 1114)	200	29%	700
Lawn and Garden Equipment and Supplies Stores (NAICS 4442)	200	20%	1,000
Other Nonmetallic Mineral Product Manufacturing (NAICS 3279)	100	25%	400

Industry Type and Code	Number of BIPOC Employees	Percentage of Employees who are BIPOC	Total Number of Employees
Office Furniture (including Fixtures) Manufacturing (NAICS 3372)	100	25%	400
Florists (NAICS 4531)	80	27%	300
General Rental Centers (NAICS 5323)	60	30%	200
Independent Artists, Writers, and Performers (NAICS 7115)	60	15%	400
Textile and Fabric Finishing and Fabric Coating Mills (NAICS 3133)	NA	NA	NA
Specialty (except Psychiatric and Substance Abuse) Hospitals (NAICS 6223)	NA	NA	NA

Sources: U.S. Census Bureau, Quarterly Workforce Indicators (4-digit NAICS codes); accessed August 2020. Employment counts are rounded.

3.2 Current BIPOC Business Ownership

Table 3-2 Business counts by race and ethnicity of business owner

Industry Type	Percent Owned by BIPOC	Number Owned by BIPOC	Owned by non-BIPOC	NAICS Industry Code
Agriculture, Forestry, Fishing and Hunting	0%	0	400	11
Mining, Quarrying, and Oil and Gas Extraction	0%	0	<100	21
Utilities	0%	0	<50	22
Construction	11%	1,200	9,800	23
Manufacturing	11%	400	2,900	31-33
Wholesale Trade	17%	600	3,200	42
Retail Trade	28%	1,800	4,600	44-45
Transportation and Warehousing	15%	300	1,500	48-49
Information	19%	200	900	51
Finance and Insurance	17%	500	2,300	52
Real Estate and Rental and Leasing	16%	700	3,600	53
Professional, Scientific, And Technical Services	15%	2,000	10,900	54
Management of Companies and Enterprises	2%	<10	400	55

Industry Type	Percent Owned by BIPOC	Number Owned by BIPOC	Owned by non-BIPOC	NAICS Industry Code
Administrative and Support and Waste Management and Remediation Services	24%	1,000	3,300	56
Educational Services	27%	300	800	61
Health Care and Social Assistance	27%	2,400	6,400	62
Arts, Entertainment, and Recreation	0%	<10	1,200	71
Accommodation and Food Services	52%	3,600	3,300	72
Other Services (Except Public Administration)	34%	1,700	3,400	81
Industries Not Classified	0%	-	200	99
Total for All Sectors	22%	16,600	58,400	00

Note: This table excludes firms whose ownership could not be determined. Figures have been rounded to the nearest hundred and may not appear to sum to the subtotals. Percentages were calculated based on the non-rounded counts.

Sources: U.S. Census Bureau, Annual Survey of Entrepreneurs in the Seattle-Tacoma-Bellevue, WA Metro Area, 2016. Binary Race Categorization of Business Owners by Industry (NAICS) combining data on race and ethnicity.

3.3 Forecasts of Employees by Industry

Table 3-3 presents forecasts of the number of employees by industry type, excluding farming industries. Because economic growth has more uncertainty, forecasts are presented with less detail about industry type and with no information about the race and ethnicity of future employees or owners. In addition, these forecasts were not able to incorporate changes due to the COVID-19 pandemic.

To project the number of employees by industry type, we combined state-level estimates and future projections using detailed industrial subsectors with county-specific projections created by King County using broad industrial sectors. The King County Office of Economic and Financial Analysis (OEFA) projects employment growth to 2029 by large industrial sector, such as “manufacturing” and “professional and business services.” The Washington Employment Security Department (ESD) provides current and projected estimates of employment for subsectors such as “fabricated metal product manufacturing” and “food and beverage stores.” We used the King County OEFA projections to estimate overall employment in the broad sectors, then divided that employment into more detailed subsectors based on the proportions from Washington ESD to create employment projections by sub-sectors for all of King County in 2025 and 2030.

Table 3-3 Employee forecasts by industry

* Industry	Estimated Employment 2020	Estimated Employment 2025	Estimated Employment 2030	Growth Rate 2020-2025	Growth Rate 2025-2030	Growth Rate 2020-2030
1 TOTAL NONFARM	1,374,000	1,515,700	1,595,000	10%	5%	16%
2 NATURAL RESOURCES AND MINING	500	500	400	2%	-9%	-8%
3 Logging	100	100	100	2%	-9%	-8%
3 Mining	400	400	400	2%	-9%	-8%
2 CONSTRUCTION	74,500	88,800	93,300	19%	5%	25%
2 MANUFACTURING	92,000	82,200	76,600	-11%	-7%	-17%
3 Durable Goods	69,000	61,700	57,600	-11%	-7%	-16%
4 Wood Product Manufacturing	700	600	600	-15%	-8%	-22%
4 Nonmetallic Mineral Product Manufacturing	2,700	2,400	2,300	-11%	-5%	-15%
4 Primary Metal Manufacturing	600	600	600	-4%	6%	2%
4 Fabricated Metal Product Manufacturing	6,100	5,600	5,200	-9%	-6%	-15%
4 Machinery Manufacturing	5,200	5,000	4,900	-4%	-2%	-5%
4 Computer and Electronic Product Manufacturing	7,400	6,500	6,000	-12%	-9%	-20%
4 Electrical Equipment and Appliance Manufacturing	1,400	1,300	1,200	-11%	-8%	-18%
4 Transportation Equipment	37,600	33,200	30,600	-12%	-8%	-19%
5 Aerospace Product and Parts Manufacturing	34,800	30,800	28,500	-12%	-8%	-18%
5 Other Transportation Equipment	2,800	2,400	2,200	-13%	-11%	-22%
4 Other Durable Manufacturing	7,100	6,500	6,200	-9%	-4%	-13%
3 Non-Durable Goods	23,000	20,500	19,000	-11%	-7%	-17%
4 Food Manufacturing	14,200	13,000	12,100	-8%	-6%	-14%
4 Paper Manufacturing	1,100	900	900	-11%	-8%	-18%
4 Printing and Related Support Activities	2,500	1,900	1,600	-24%	-15%	-35%
4 Other Non-Durable	5,200	4,600	4,400	-11%	-6%	-16%
2 TRADE, TRANSPORTATION, AND UTILITIES	260,600	279,500	267,400	7%	-4%	3%
2 WHOLESALE TRADE	60,900	62,300	56,900	2%	-9%	-7%

* Industry	Estimated Employment 2020	Estimated Employment 2025	Estimated Employment 2030	Growth Rate 2020-2025	Growth Rate 2025-2030	Growth Rate 2020-2030
2 RETAIL TRADE	148,000	160,100	154,100	8%	-4%	4%
3 Food and Beverage Stores	21,800	21,600	19,500	-1%	-10%	-11%
3 Motor Vehicle and Parts Dealers	10,800	10,800	9,700	0%	-10%	-10%
3 Other Retail Trade	115,400	127,700	125,000	11%	-2%	8%
2 TRANSPORTATION, WAREHOUSING AND UTILITIES	51,700	57,100	56,300	10%	-1%	9%
3 Utilities	1,600	1,600	1,400	3%	-12%	-9%
3 Transportation and Warehousing	50,100	55,500	54,900	11%	-1%	10%
2 INFORMATION	126,000	142,000	152,600	13%	7%	21%
3 Software Publishers	69,000	71,400	70,500	3%	-1%	2%
3 Publishing Industries, Excluding Software	2,200	1,700	1,400	-21%	-23%	-39%
3 Other Information	54,600	68,600	81,500	26%	19%	49%
2 FINANCIAL SERVICES	73,800	74,900	69,800	1%	-7%	-6%
3 Finance and Insurance	43,700	44,200	41,500	1%	-6%	-5%
3 Real Estate, Rental and Leasing	30,100	30,700	28,300	2%	-8%	-6%
2 PROFESSIONAL AND BUSINESS SERVICES	236,000	261,000	362,000	11%	39%	53%
3 Professional, Scientific and Technical Services	131,300	148,700	210,100	13%	41%	60%
3 Management of Companies and Enterprises	31,600	33,700	45,600	7%	35%	44%
3 Business Services	73,100	78,500	106,300	7%	36%	45%
4 Employment Services	27,500	28,600	37,600	4%	32%	37%
4 Other Business Services	45,600	49,900	68,700	9%	38%	51%
2 OTHER SERVICES	336,700	404,700	385,200	20%	-5%	14%
3 Education and Health Services	164,900	201,400	195,400	22%	-3%	18%
4 Education Services	26,700	33,000	32,500	24%	-2%	22%
4 Health Services and Social Assistance	138,300	168,300	162,900	22%	-3%	18%
3 Leisure and Hospitality	128,400	152,100	141,400	19%	-7%	10%
4 Arts, Entertainment, and Recreation	24,100	28,800	27,300	20%	-5%	13%
4 Accommodation and Food Services	104,300	123,400	114,200	18%	-7%	9%
3 Other Services	43,400	51,200	48,300	18%	-6%	11%

* Industry	Estimated Employment 2020	Estimated Employment 2025	Estimated Employment 2030	Growth Rate 2020-2025	Growth Rate 2025-2030	Growth Rate 2020-2030
2 GOVERNMENT	173,800	182,200	187,700	5%	3%	8%
3 Federal Government	18,400	18,100	17,800	-2%	-2%	-3%
3 State & Local Government Educational Services	84,700	90,000	94,100	6%	5%	11%
3 Other State and Local Government	62,900	63,900	65,300	2%	2%	4%

Note: Figures have been rounded to the nearest hundred and may not appear to sum to the subtotals. Percentages were calculated based on the non-rounded counts. Numbers in the first column indicate sub-industries for people using screen-readers.

Sources: Greene Economics, LLC using data from the State of Washington Employment Security Department and King County (Office of Economic and Financial Analysis).

4 Program Customers, Quantities, and Waste Types



4.1 Collection Services

King County is located in the Central Puget Sound region in the State of Washington and covers 2,134 square miles. Current land uses in King County range from urban areas with concentrated populations and intensive commercial and industrial uses to less densely populated suburban areas, farms, commercial forests, woodlots, and state and national forests. Land uses and population density affect needs and access to our Program services. Approximately half of the county, mostly in the mountainous eastern region, consists of federal or commercial forest land. Hydrologically, King County includes four major river basins with salmon-bearing streams; Lake Washington, Lake Sammamish, and other lakes; and portions of Puget Sound. Hazardous contaminants in stormwater runoff from developed areas through waterways and other flows are a major source of contamination in Puget Sound.

To serve our customers and protect our environment, the Program provides collection services for household hazardous waste (HHW) and moderate risk waste (MRW), including used motor oil, at no charge for residents and small quantity generator (SQG) businesses in King County. Residents and SQG businesses also have access to a variety of privately provided collection services.

Program Collection Services

Our Program's collection system includes four fixed sites:

- North Seattle Hazardous Waste Facility, operated by Seattle Public Utilities
- South Seattle Hazardous Waste Facility, operated by Seattle Public Utilities
- Factoria Hazardous Waste Facility, operated by King County Solid Waste Division
- Auburn Weekly Wastemobile Site, operated by King County Solid Waste Division

Our Program also offers mobile collection at a travelling Wastemobile. We held 21 collection events in 2020, each lasting three days, as shown in Figure 4-1. Figure 4-1 also presents the days and hours of operation for the fixed facilities. We also offer in-home collection for seniors and residents with disabilities, upon request.

Residents bringing HHW from their homes may use our services as often as they need them. Qualified businesses may use our Program's collection services up to four times per year. To qualify, businesses must be located in King County and qualify as SQGs based on the amount and type of hazardous waste they generate

and store. Table 4-1 shows the current [list of materials](#) we accept from residents and SQG businesses.

Figure 4-1 Collection service schedule for 2020

Bring your Hazardous Waste to a drop-off site or to the Wastemobile!

Drop-off site

FACTORIA
(located at the transfer station)
13800 SE 32nd St
Bellevue, WA 98005
Open:
Tues–Fri 8 a.m.–4 p.m.
Sat–Sun 9 a.m.–5 p.m.

NORTH SEATTLE
12550 Stone Ave N
Seattle, WA 98133
Open:
Sun, Mon, Tues
9:30 a.m.–4:30 p.m.

SOUTH SEATTLE
(located next to the transfer station)
8100 2nd Ave S
Seattle, WA 98108
Open:
Thu, Fri, Sat
9:30 a.m.–4:30 p.m.

Wastemobile

BOTHELL/WOODINVILLE
6 DATES
Round #1: February 21 to 23
Round #2: April 10 to 12
Round #3: May 15 to 17
Round #4: June 19 to 21
Round #5: August 21 to 23
Round #6: October 16 to 18
McMurtrey's Red-Wood Christmas Tree Farm
13925 Woodinville-Redmond Road NE
Redmond, WA 98052

KENT/COVINGTON
3 DATES
Round #1: March 6 to 8
Round #2: May 29 to 31
Round #3: September 11 to 13
Puget Sound Fire Station #75
15635 SE 272nd St
Kent, WA 98042

REDMOND
3 DATES
Round #1: April 3 to 5
Round #2: July 17 to 19
Round #3: October 2 to 4
The Home Depot
17777 NE 76th St
Redmond, WA 98052

VASHON
April 24 to 26
Tjomsland Gravel Pit
17001 107th Ave SW
Vashon, WA 98070

KIRKLAND
May 8 to 10
Fred Meyer
12221 120th Ave NE
Kirkland, WA 98034

ENUMCLAW
June 5 to 7
Enumclaw Expo Center
45224 284th Ave SE
Enumclaw, WA 98022

SNOQUALMIE
July 10 to 12
Cascade View Elementary
34816 SE Ridge St
Snoqualmie, WA 98065

DES MOINES
July 24 to 26
Midway Elementary
22447 24th Ave S
Des Moines, WA 98198

SAMMAMISH
August 7 to 9
Eastside Catholic School
232 228th Ave SE
Sammamish, WA 98074

CARNATION/DUVAL
August 14 to 16
Tolt MacDonald Park
Boeing Mariners Care Field
3600 Block of Tolt Ave
Carnation, WA 98014

BURIEN
September 18 to 20
Fred Meyer
14300 1st Ave S
Burien, WA 98168

RENTON
October 9 to 11
McLendon Hardware
440 Rainier Ave S
Renton, WA 98057

YEAR-ROUND AUBURN WASTEMOBILE
Saturdays & Sundays
The Outlet Collection *
1101 Outlet Collection Way
Auburn, WA 98001
* Located at the northwest corner of the mall, in the loading dock, near Nordstrom Rack

Closed:
November 28 & 29, 2020
December 26 & 27, 2020

 **Wastemobile customers must remain in their vehicles**

Wastemobile hours of operation:
10 a.m. - 5 p.m.

2020 Schedule

 **What can I bring?**

Some locations may be subject to change or were affected by COVID-19. Visit hazwastehelp.org

Table 4-1 Materials our Program accepts from residents and businesses

Material	Residents	SQG Businesses
Acetone	--	Yes
Acids	--	Yes
Aerosols	Yes	Yes
All-purpose cleaners	Yes	Yes
Amalgam waste	--	Yes
Ammonia	Yes	Yes
Ammunition	--	--
Antibacterial products and disinfectants	Yes	Yes
Antifreeze	Yes	Yes
Appliances	--	--
Asbestos	--	--
Automotive fluids and oils	Yes	Yes
Batteries	Yes	Yes
Biomedical waste	--	--
Bleach	Yes	Yes
Butane and propane tanks	--	Yes

Material	Residents	SQG Businesses
Car batteries	Yes	Yes
Charcoal	Yes	Yes
Cold packs	Yes	Yes
Commercial compressed gas cylinders	--	--
Concrete sealer	Yes	Yes
Contaminated soil	--	--
Cooking oil, fats, grease	--	--
Drain cleaner	Yes	Yes
Electronics	--	--
Empty containers	--	--
Explosives	--	--
Fertilizer	Yes	Yes
Fire extinguishers	Yes	Yes
Fireworks	--	--
Flares	Yes	Yes
Fluorescent light ballasts	Yes	Yes
Fluorescent light bulbs	Yes	Yes
Fluorescent light tubes	Yes	Yes
Formaldehyde	Yes	Yes
Freon and Freon filters	--	Yes
Fuel filters	Yes	Yes
Fungicides	Yes	Yes
Furniture polish	Yes	--
Gasoline and fuel	Yes	Yes
Generators	--	--
Glue and Adhesives	Yes	Yes
Hair dye	Yes	--
Halogen light bulbs	--	--
Hand sanitizer	Yes	--
Helium tanks	--	--
Herbicides	Yes	Yes
Ink and dye	Yes	--
Ink and dyes	--	Yes
Lab chemicals	Yes	Yes
Lead aprons	--	--
Lead solder and flux	Yes	--
Lead solder or flux	--	Yes
Lead-based paint and chips	Yes	Yes
Lice shampoo	Yes	--
Marine anti-fouling paint	Yes	Yes
Medicine	--	--
Mercury and mercury-containing products	Yes	Yes
Metal cleaners	Yes	Yes
Mothballs	Yes	--
Motor oil	Yes	Yes
Nail polish	Yes	Yes
Nail polish remover	Yes	Yes
Oil filters	Yes	Yes
Oily water	--	--

Material	Residents	SQG Businesses
Oven cleaner	Yes	--
Paint - oil-based	Yes	Yes
Paint booth filters	--	Yes
Paint stripper	Yes	Yes
Paint thinner	Yes	Yes
Paint: latex, water-based, or acrylic	--	--
Paint: oil-based	Yes	--
Pepper spray	Yes	--
Perchloroethylene	--	Yes
Peroxides	--	Yes
Pesticides	Yes	Yes
Photographic materials	Yes	Yes
Plating solution	--	Yes
Propane and butane tanks	Yes	--
Resins	Yes	Yes
Rubbing alcohol	Yes	Yes
Rust remover	Yes	Yes
Sharps, needles, and syringes	--	--
Sharps, needles, syringes	--	--
Shop towel	--	Yes
Shop towels	Yes	--
Smoke detectors	--	--
Spray paint	Yes	Yes
Stillbottoms	--	Yes
Swimming pool chemicals	Yes	Yes
Tires	--	--
Toilet bowl cleaner	Yes	Yes
Toner cartridges	--	--
Unknown or unlabeled waste	--	--
Varnish and lacquer	Yes	Yes
Weed killers	Yes	Yes

Other Public and Private Collection Opportunities

Our Program promotes and educates residents and SQG businesses about other collection opportunities in King County for hazardous waste and used motor oil. Current information on collection options is available on three websites:

- King County: [*What do I do with...?*](#)
- Seattle: [*Where does it go...?*](#)
- Statewide: <http://1800recycle.wa.gov>

Cities and Tribes in King County sponsor collection events that accept related waste from residents throughout the year, such as automotive fluids, batteries, appliances containing chlorofluorocarbons, fluorescent lamps, propane tanks, and oil-based

paints. Our Program provides some grant funding for these events and sometimes coordinates Wastemobile events with them.

Extended producer responsibility programs must provide collection for:

- Computers, laptops, televisions, and monitors (find sites at <http://1800recycle.wa.gov>)
- Fluorescent lamps (find sites at www.lightrecycle.org)
- Medicine (find sites at <https://kingcountysecuremedicinereturn.org>)
- Latex and oil-based paint (find sites at www.paintcare.org/drop-off-sites)

Voluntary retailer or producer drop-off and mail-back program collect other selected hazardous materials such as batteries, thermostats, and electronics. Private hazardous waste service providers collect MRW from SQG businesses.

Used motor oil and/or oil filters are collected at a variety of locations throughout King County beyond our Program's four fixed sites and Wastemobile events, including:

- City- and Tribal-sponsored collection events.
- Seattle's two solid waste transfer stations.
- An estimated 75 locations at chain auto parts stores, plus additional automotive repair shops and independent auto parts stores.
- Curbside for single-family residential garbage customers in the City of Seattle and several suburban cities. Suburban cities include but may not be limited to Auburn, Bothell, Burien, Carnation, Des Moines, Federal Way, Issaquah, Kirkland, Maple Valley, Redmond, SeaTac, and Shoreline. Together, these cities contained approximately 60% of King County's population in 2020.

Our Program provides education on how to properly manage used oil, oil filters, and other hazardous products. Through our own printed and online information and information provided by partners, we also provide education on where to take these items for proper collection.

Collection System Issues

King County rebuilt the Factoria Hazardous Waste Facility and started operations in September 2017. The North and South Seattle Hazardous Waste Collection sites are older, and we will evaluate them for needed upgrades in the next *Collection Services and Facilities Study* that the Program conducts. Our two busiest fixed sites are in North Seattle (serving 17 customers per hour) and Auburn (serving 13 customers per hour). We recognize that we need to need to evaluate expanding collection services in the southern and northeastern parts of the county based on population growth as part of our next collection services and facilities study.

Analysis of our customers shows that some groups—specifically BIPOC, renter, and multifamily residents—use our services less than residents who identify as White non-Hispanic/Latino, own their home, and live in single-family homes. We conducted focus groups and other research to begin to identify the barriers to using our current collection services (see *Appendix F. Priority Community Research Summary*). These barriers included the following:

- Inconvenient hours for collection services for workers, especially for people who work multiple jobs.
- Lack of transportation to collection sites for people without vehicles or who cannot drive.
- Language barriers at collection facilities with English-only instructions.

While other collection options exist—at-home collection for homebound seniors and people with disabilities, curbside collection of some materials in some cities, and retail-based or product stewardship collection for some materials—these options may not yet be widespread, comprehensive, or convenient enough to overcome the current barriers to collection for all hazardous wastes.

As described in the strategies and actions section of our 2021 Plan, we will conduct a collection facilities and services study using a community-centered planning approach to further understand the reach, gaps, and needs of collection services in King County and to propose changes to improve collection. The study will address and make recommendations regarding:

- Community needs and barriers to safe disposal
- Underlying causes of racial disparities in collection
- Options for new or modified collection services
- Community interest in new collection services
- Capital improvement and other capacity needs

Management of Hazardous Waste We Collect

We properly manage hazardous wastes from the point of collection to final processing to protect human health and the environment. We manage the household hazardous and moderate risk wastes that we collect by following Washington State's waste management hierarchy. The best management technique varies from one waste type to another, but in general we attempt to manage waste in the following priority order:

- Reuse
- Recycling
- Physical, chemical, and biological treatment
- Incineration

- Solidification or stabilization
- Landfilling of personal protective equipment (PPE) and non-hazardous materials or empty containers collected

Table 4-2 shows how we managed the hazardous waste our Program collected in 2019.

Table 4-2 Hazardous waste tons collected by Program in 2019

Method	DOE Code	Weight (tons)	Percent
Reuse	U	23.4	1.4%
Recycling	R	423.7	25.1%
Energy recovery	E	709.7	42%
Treatment	T	80.7	4.8%
Haz Waste Facility	H	3.9	0.2%
Incineration	O	381.8	22.6%
Retort	O-Retort	0.2	0%
Landfill	S	67.7	4%
Total		1,691	100%

Source: The Program's Moderate Risk Waste Database

At some of our collection sites, we offer reusable products dropped off by customers free of charge to the public. During initial sorting, we select products that are in good condition, have a label that is intact and legible, and have a low potential for environmental harm and toxicity. We do not reuse products that are highly corrosive, reactive, or poisonous.

When possible, we recycle hazardous materials, including uncontaminated motor oil, antifreeze, batteries, metal tanks and cylinders, mercury, oil filters, fluorescent lamps, and latex paint. We provide additional details on disposition to Ecology annually. We follow all regulations for hazardous waste handling, transport, disposal, and reporting.

Our Program ensures that hazardous waste we collect is properly managed in treatment and disposal facilities through contract qualification and selection procedures, and through facility compliance and waste disposition audits.

Our Program follows best practices to manage hazardous waste, and we train staff to follow these practices. Program staff particularly understand the health and environmental risks of PCBs and follow proper procedures to prevent contamination from and safely dispose of PCB-containing oil, which are documented in the operations plans for our fixed sites and Wastemobile. We carefully adhere to RCW 70A.224.020 to properly manage used oil by following best management practices including signage, secured containers, sampling, tracking, and reporting. Our

contracts include provisions for properly disposing of PCB-contaminated oil, if collected.

We issue hazardous waste management contracts after carefully evaluating the primary contractors' and subcontractors' compliance histories and current permit statuses. Once qualified, contractors assume primary liability for the proper management of hazardous waste. The contracts also include penalty provisions for non-compliance and require contractors to use hazardous waste manifests to track the transfer and final management of hazardous waste.

Each time we issue a new disposal contract, our Program conducts regulatory compliance research and completes a checklist covering waste acceptance, storage, employee training, emergency preparedness, environmental monitoring, and equipment pollution controls.

Our Program requires contractors to submit certificates of destruction or documentation of recycling or reuse for each shipment of hazardous waste. This paperwork ensures that the hazardous waste was delivered to the proper facility and was treated or otherwise managed so that it no longer presents a potential hazard. Certificates of destruction must reference specific manifests listing the hazardous waste shipped from the Program facilities.

4.2 Residential Household Hazardous Waste Summary

This section summarizes residential visitor demographics, visitor counts, and quantities collected by our Program. It also describes City and Tribal events that our Program sponsors.

Visitor Demographics (2012 survey)

Our Program regularly asks residential visitors for their zip codes, but we collect other demographic data only through special surveys. Based on a survey conducted at Program collection facilities and events in 2012, residential visitors using those sites have different characteristics compared to residents in King County as a whole. Collection site users in 2012 were more likely to:

- Live in single-family houses
- Own their homes
- Identify as White alone and non-Hispanic/Latino
- Earn higher incomes, except for incomes above \$150,000

Figure 4-2 Residential visitor demographics by race and ethnicity, compared to population in 2012

1,654 respondents

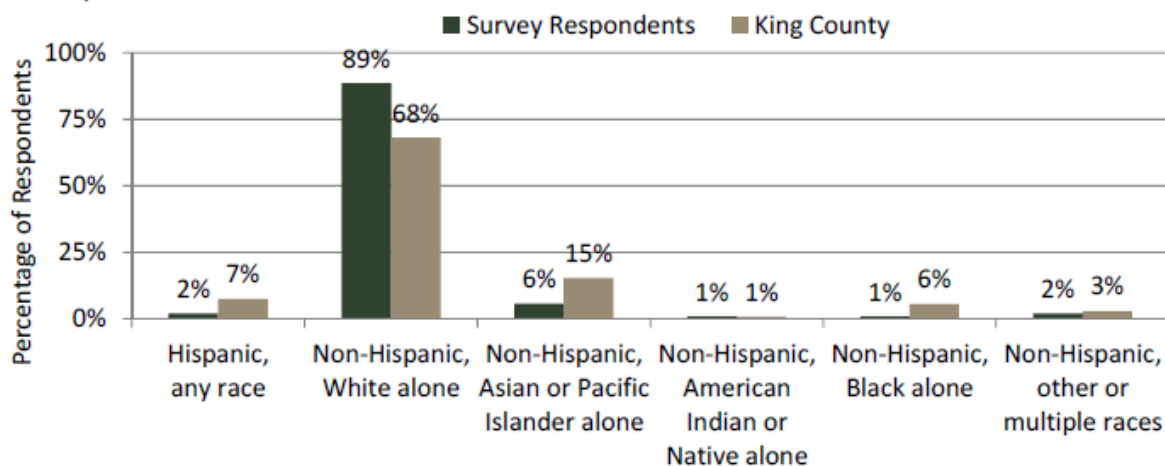
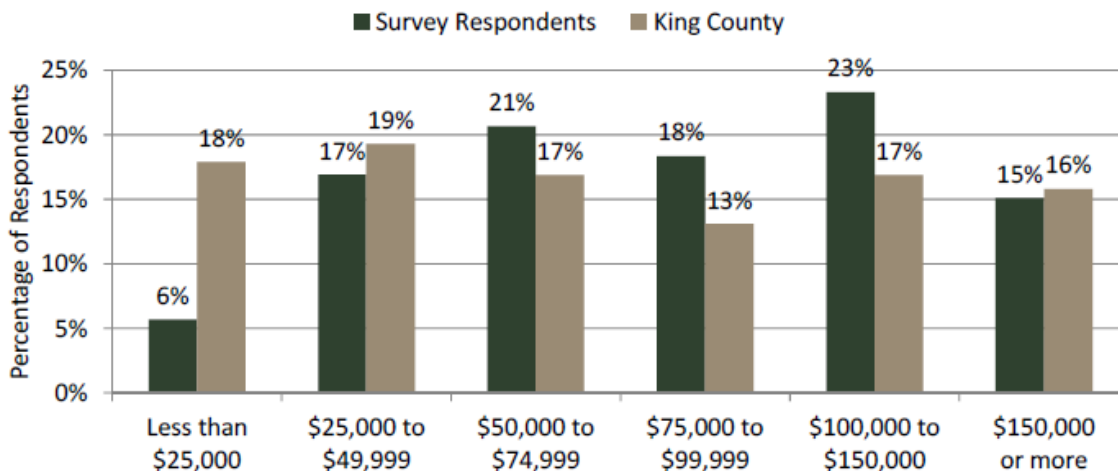


Figure 4-3 Residential visitor demographics by income, compared to population in 2012



Residential Visitor Counts by Collection Service

Table 4-3 Residential visits by collection service (historic and projections)

Facility	2011	2019	Change 2011-2019	2030 projection
Factoria (SWD)	14,408	17,925	+24%	21,000
North Seattle Facility (SPU)	10,218	18,368	+80%	21,000
South Seattle Facility (SPU)	6,365	8,786	+38%	10,000
Auburn Wastemobile	4,049	9,419	+133%	11,000
Wastemobile (traveling)	9,227	13,196	+43%	15,000
Home-based collection	2	77	+3,750%	100
Total	44,269	67,771	+53%	79,000

Note: Projections are based on population growth, assuming no other changes in services (such as sites, hours, or marketing). Projection figures have been independently rounded, so the total may not appear to equal the sum of collection service projections.

Sources: The Program's Moderate Risk Waste Database.

Table 4-4 Residential visits per hour of operation, by collection service (2019)

Facility	Customers Served 2019	Hours of Service 2019	Customers Served per Hour
Factoria (SWD)	17,925	2,496	7
North Seattle Facility (SPU)	18,368	1,092	17
South Seattle Facility (SPU)	8,786	1,092	8
Auburn Wastemobile	9,419	700	13
Wastemobile (traveling)	13,196	448	29
Total	67,771	5,828	12

Sources: The Program's Moderate Risk Waste Database.

Use of our collection sites and events varied by zip code, ranging from 8.8% of residents in zip code 98070 (Vashon Island, primarily using the traveling Wastemobile) in 2019 to less than half a percent in zip code 98104 (Pioneer Square in downtown Seattle, primarily using the South Seattle facility).

Figure 4-4 Percentage of residents using our collection services in 2019

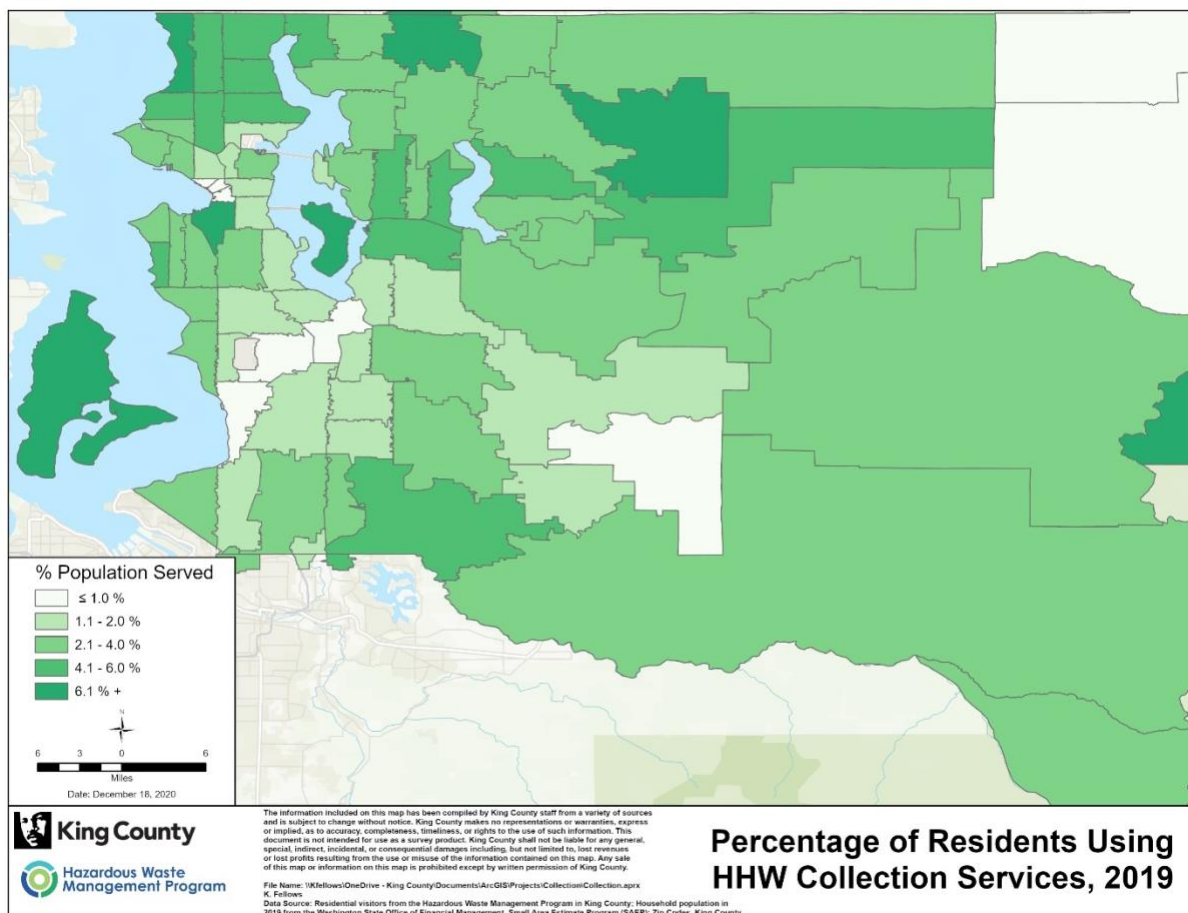


Table 4-5 Residential collection service visits by zip code

Zip Code	Total Visitors	Percent of Population in Zip Code	Primary Site Visited	Percent of visitors using the primary site
98070	951	8.8%	Wastemobile (traveling)	93%
98177	1,544	7.6%	North Seattle	98%
98050	27	7.4%	Factoria	89%
98040	1,753	7.2%	Factoria	99%
98014	510	6.7%	Wastemobile (traveling)	73%
98068	8	6.6%	Factoria	88%
98134	44	6.5%	South Seattle	93%
98072	1,300	6.0%	Wastemobile (traveling)	82%
98006	2,240	5.8%	Factoria	99%
98117	1,863	5.4%	North Seattle	94%
98005	946	4.7%	Factoria	99%
98008	1,210	4.6%	Factoria	93%
98092	1,786	4.6%	Wastemobile (Auburn)	98%
98028	1,059	4.6%	Wastemobile (traveling)	75%
98125	1,894	4.4%	North Seattle	98%
98133	2,172	4.4%	North Seattle	99%
98115	2,300	4.3%	North Seattle	94%
98024	257	4.3%	Factoria	91%
98136	683	4.2%	South Seattle	98%
98103	2,239	4.2%	North Seattle	92%
98155	1,432	4.1%	North Seattle	93%
98074	1,192	4.1%	Wastemobile (traveling)	52%
98116	1,074	4.0%	South Seattle	91%
98053	851	3.8%	Wastemobile (traveling)	54%
98001	1,358	3.8%	Wastemobile (Auburn)	97%
98027	1,120	3.7%	Factoria	98%
98011	1,250	3.6%	Wastemobile (traveling)	85%
98199	775	3.6%	North Seattle	79%
98042	1,686	3.5%	Wastemobile (traveling)	62%
98022	746	3.3%	Wastemobile (traveling)	70%
98002	1,168	3.3%	Wastemobile (Auburn)	98%
98146	951	3.3%	South Seattle	69%
98166	647	3.0%	South Seattle	77%
98004	1,016	2.9%	Factoria	96%
98065	455	2.9%	Wastemobile (traveling)	57%
98075	697	2.9%	Factoria	95%

Zip Code	Total Visitors	Percent of Population in Zip Code	Primary Site Visited	Percent of visitors using the primary site
98107	837	2.9%	North Seattle	89%
98126	684	2.8%	South Seattle	92%
98106	731	2.8%	South Seattle	93%
98045	418	2.7%	Factoria	59%
98007	774	2.7%	Factoria	93%
98108	675	2.7%	South Seattle	88%
98354	31	2.6%	Wastemobile (Auburn)	100%
98077	343	2.6%	Factoria	50%
98034	1,100	2.5%	Factoria	50%
98052	1,680	2.4%	Wastemobile (traveling)	51%
98033	901	2.3%	Factoria	63%
98029	662	2.3%	Factoria	96%
98019	271	2.2%	Wastemobile (traveling)	66%
98112	529	2.2%	North Seattle	62%
98119	575	2.2%	North Seattle	74%
98058	976	2.2%	Wastemobile (traveling)	61%
98023	1,088	2.1%	Wastemobile (Auburn)	92%
98056	710	2.0%	Factoria	89%
98010	108	1.9%	Wastemobile (Auburn)	61%
98039	63	1.9%	Factoria	86%
98102	507	1.9%	North Seattle	70%
98059	744	1.9%	Factoria	88%
98032	678	1.8%	Wastemobile (Auburn)	68%
98105	929	1.7%	North Seattle	91%
98144	538	1.7%	South Seattle	65%
98038	588	1.7%	Wastemobile (Auburn)	49%
98031	575	1.5%	Wastemobile (Auburn)	76%
98168	524	1.4%	South Seattle	87%
98118	711	1.4%	South Seattle	78%
98030	510	1.4%	Wastemobile (Auburn)	72%
98055	336	1.3%	Wastemobile (traveling)	58%
98003	662	1.3%	Wastemobile (Auburn)	95%
98178	340	1.3%	South Seattle	69%
98047	85	1.3%	Wastemobile (Auburn)	91%
98164	2	1.3%	South Seattle	50%
98122	522	1.2%	North Seattle	42%
98109	417	1.2%	North Seattle	70%

Zip Code	Total Visitors	Percent of Population in Zip Code	Primary Site Visited	Percent of visitors using the primary site
98148	126	1.2%	South Seattle	48%
98198	348	0.9%	South Seattle	49%
98188	223	0.9%	South Seattle	56%
98057	103	0.8%	Wastemobile (traveling)	47%
98051	24	0.6%	Wastemobile (Auburn)	50%
98288	2	0.5%	Factoria	50%
98101	81	0.5%	North Seattle	49%
98121	107	0.5%	North Seattle	48%
98104	69	0.4%	South Seattle	48%
98224	-	-	NA	-
Out of County	2,086	0.0%	North Seattle	35%
Unknown	1,497	0.0%	Wastemobile (traveling)	54%
Total	67,694	3.0%		

Notes:

Zip code 98224 has very few residents and is located south of Skykomish.

Primary site visited shows the site that the largest number of people from that code visited. *Percent of visitors using the primary site* is calculated by dividing the number of visitors from that zip code who used the primary site by the total visitors from that zip code.

Sources: Customer data were obtained from the Hazardous Waste Management Program's Moderate Risk Waste database. Zip code population data for 2019 were obtained from the Washington State Office of Financial Management.

In addition to hazardous waste collection services, our Program offers practical advice for residents through phone consultations, education, and outreach to help residents safely manage hazardous materials. In 2019, our Program received 2,799 calls through its Hazardous Waste Help Line.

Residential Quantities Collected

Table 4-6 Residential tons by collection service (historic and projected)

Facility	2011 tons	2019 tons	Change	2030 projection
Factoria (SWD)	336	331	-2%	390
North Seattle Facility (SPU)	277	403	+45%	470
South Seattle Facility (SPU)	272	315	+16%	370
Auburn Wastemobile	181	272	+50%	320
Wastemobile (traveling)	290	299	+3%	350
Home-based collection	<1	5	+27300%	10
Total	1,356	1,626	+20%	1,900

Note: Projections are based on projected residential visits (Table 4-3) and 2019 pounds collected per customer (Table 4-7). Projection figures have been independently rounded, so the total may not appear to equal the sum of collection service projections.

Sources: The Program's Moderate Risk Waste Database.

Table 4-7 Residential pounds collected per visit, by collection service

Facility	2011 lbs. per customer	2019 lbs. per customer	Change
Factoria (SWD)	47	37	-21%
North Seattle Facility (SPU)	54	44	-19%
South Seattle Facility (SPU)	85	72	-16%
Auburn Wastemobile	90	58	-35%
Wastemobile (traveling)	63	45	-28%
Home-based collection	20	142	+612%
Total	61	48	-22%

Sources: The Program's Moderate Risk Waste Database.

Table 4-8 Program pounds collected from residents by product type

Material Type	Pounds in 2019
Antifreeze	166,670
Flammable Solids	1,186
Flammable Liquids	544,703
Flammable Liquid – Poison	97,180
Flammable Gas - Poison (aerosol cans)	12,435
Flammable Butane, Propane, etc.	121,892
Mercury - Fluorescent tubes and CFLs	26,745

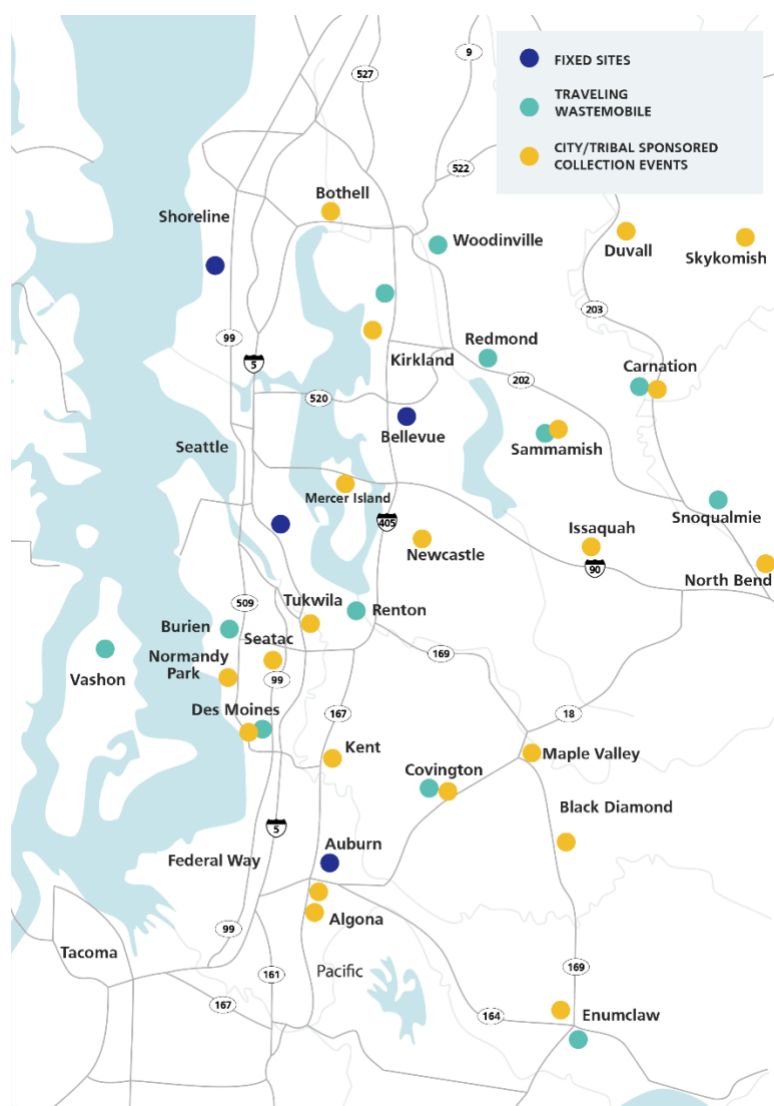
Material Type	Pounds in 2019
Mercury Thermometers, Thermostats	35
Mercury - Pure (Elemental)	505
Mercury Compounds (dental amalgam, etc.)	21
Mercury Devices (manometers, barometers, etc.)	233
Non-Regulated Liquids (soaps, cleaners)	7,489
Non-Regulated Solids	134,600
Organic Peroxides	151
Oxidizers	11,605
Paint – Latex	1,972
Paint - Oil Based	395,737
Paint Related Materials	526,392
Pesticide/Poison Liquid	152,335
Pesticide/Poison Solids	148,634
Photo/Silver Fixer	-
Reactives	1,270
PCB Containing Light Ballasts	9,743
Oil filters	2,521
Cyanide Solutions	9
Compressed Gas Cylinders (O2 and Acetylene)	1,042
Fire Extinguishers	27,463
Materials Recycled (packaging, etc.)	11,959
Material Reuse/Exchange without processing	46,714
Other Dangerous Wastes	636
Other Dangerous Wastes (Marine Flare)	562
Oil Non-contaminated	331,443
Oil Contaminated	2,037
Oil-stained rags, absorbent pads, etc.	865
Aerosols (consumer commodities)	137,216
Acids	56,994
Bases	95,938
Batteries - Auto Lead Acid	77,715
Batteries - Small Lead Acid	5,579
Batteries - NiCad/NIMH/Lithium	12,920
Batteries - Household dry cell (alkaline/carbon)	70,586
Total	3,243,732

Sources: The Program's Moderate Risk Waste Database.

City and Tribal Collection and Education Events

The Hazardous Waste Management Program provides financial grants serving 36 cities and the Snoqualmie Tribe to help more residents safely manage their hazardous materials. Grants are combined with other funding sources to support education and collection events for limited types of household hazardous waste and recyclable solid wastes. In 2019, the grants sponsored 40 collection events serving 27,188 attendees and collecting 66 tons of waste. Despite disruptions from the COVID-19 pandemic, the grants sponsored 32 events serving 24,018 attendees and collecting 57 tons of waste in 2020.

Figure 4-5 Collection sites and events in 2020



Source: Hazardous Waste Program Annual Report 2020

4.3 Business Small Quantity Generator Moderate Risk Waste Summary

This section summarizes SQG business visitor counts and quantities collected by our Program.

Business Visitor Counts by Collection Service

Table 4-9 Business visits by collection service (historic and projections)

Facility	2010	2019	Change 2011-2019	2030 projection
Factoria (SWD)	88	257	+192%	300
North Seattle Facility (SPU)	146	336	+130%	390
South Seattle Facility (SPU)	134	355	+165%	410
Auburn Wastemobile	47	49	+4%	60
Wastemobile (traveling)	19	39	+105%	50
Total	434	1,036	+139%	1,200

Notes: Each eligible business may visit up to four times per year. Projections are based on non-farm employment growth, assuming no other changes in services (such as sites, hours, or marketing). Projection figures have been independently rounded, so the total may not appear to equal the sum of collection service projections.

Sources: The Program's Moderate Risk Waste Database.

Table 4-10 Business visits per hour of operation, by collection service (2019)

Facility	Customers Served 2019	Hours of Service 2019	Customers Served Per Hour 2019
Factoria (SWD)	257	2,496	0.10
North Seattle Facility (SPU)	336	1,092	0.31
South Seattle Facility (SPU)	355	1,092	0.33
Auburn Wastemobile	49	700	0.07
Wastemobile (traveling)	39	448	0.09
Total	1,036	5,828	0.18

Sources: The Program's Moderate Risk Waste Database.

Business Quantities Collected

Table 4-11 Business quantities collected by collection service

Facility	2011 tons	2019 tons	Change 2011-2019	2030 projection
Factoria (SWD)	6	16	+165%	20
North Seattle Facility (SPU)	8	20	+155%	25
South Seattle Facility (SPU)	10	27	+167%	30
Auburn Wastemobile	4	4	+14%	5
Wastemobile (traveling)	1	3	+171%	5
Total	29	71	+144%	80

Note: Projections are based on projected business visits (Table 4-9) and 2019 pounds collected per business visit (Table 4-12). Projection figures have been independently rounded, so the total may not appear to equal the sum of collection service projections.

Sources: The Program's Moderate Risk Waste Database.

Table 4-12 Business quantities collected per visit by service

Facility	2011 lbs.	2019 lbs.	Change
Factoria (SWD)	140	126	-9%
North Seattle Facility (SPU)	110	121	+11%
South Seattle Facility (SPU)	150	151	+1%
Auburn Wastemobile	153	167	+10%
Wastemobile (traveling)	120	158	+32%
Total	133	136	+2%

Sources: The Program's Moderate Risk Waste Database.

Table 4-13 Program pounds collected from businesses by product type

Material Type	Pounds in 2019
Antifreeze	2,915
Flammable Solids	283
Flammable Liquids	26,569
Flammable Liquid – Poison	8,791
Flammable Gas - Poison (aerosol cans)	65
Flammable Butane, Propane, etc.	1,697
Mercury - Fluorescent tubes and CFLs	393
Mercury Thermometers, Thermostats	37
Mercury - Pure (Elemental)	1

Material Type	Pounds in 2019
Mercury Compounds (dental amalgam, etc.)	8
Mercury Devices (manometers, barometers, etc.)	53
Non-Regulated Liquids (soaps, cleaners)	882
Non-Regulated Solids	220
Organic Peroxides	91
Oxidizers	783
Paint – Latex	-
Paint - Oil Based	17,292
Paint Related Materials	35,808
Pesticide/Poison Liquid	15,999
Pesticide/Poison Solids	2,984
Photo/Silver Fixer	1,854
Reactives	4
PCB Containing Light Ballasts	444
Oil filters	38
Cyanide Solutions	18
Compressed Gas Cylinders (O2 and Acetylene)	273
Fire Extinguishers	1,173
Materials Recycled (packaging, etc.)	-
Material Reuse/Exchange without processing	-
Other Dangerous Wastes	-
Other Dangerous Wastes (Marine Flare)	10
Oil Non-contaminated	9,741
Oil Contaminated	310
Oil-stained rags, absorbent pads, etc.	1,526
Aerosols (consumer commodities)	1,091
Acids	3,262
Bases	2,864
Batteries - Auto Lead Acid	564
Batteries - Small Lead Acid	86
Batteries - NiCad/NIMH/Lithium	1,125
Batteries - Household dry cell (alkaline/carbon)	1,972
Total	141,226

Sources: The Program's Moderate Risk Waste Database.

4.4 Residential and Business Quantities Generated

Data are extremely limited on the amount of HHW and SQG waste generated. According to the Washington State Department of Ecology's (Ecology's) [2004 Beyond Waste Plan](#), HHW is estimated to compose approximately 1% of the total quantity of municipal solid waste generated. Ecology estimates that SQG waste generation is probably at least as large.

The table below summarizes available information on where we know some of the HHW and SQG waste in King County ends up:

- Tons collected by our Program, Program partners, and private collectors that report to Ecology.
- Tons disposed of as garbage, based on waste characterization studies.

Based on these assumptions, data on municipal solid waste generation, and data on properly managed hazardous waste from households and SQGs, an estimated 50% to 85% of hazardous waste remains in storage, is released to the environment, or is disposed of through unknown methods (Table 4-14).

San Mateo County, California, surveyed its residents on the types of hazardous products they have in storage and do not plan to use. In order, the most frequently reported items were household batteries (57% of participants), paints and stains (54%), and lightbulbs and fluorescent tubes (38%).¹ Although King County residents may differ from San Mateo residents, this survey provides some insights into hazardous waste stored in homes.

Toxics from residents and businesses enter Puget Sound through wastewater and stormwater runoff. Ecology has estimated the amount and primary sources of specific toxics for all Puget Sound, but figures are not available for King County. Three largest household sources of toxics in Puget Sound identified by the study were:²

- **Copper, cadmium, zinc, and phthalates** from roofing materials.
- **Copper** from urban and homeowner use of pesticide and fertilizers, brake pads, and boat paint.
- **Petroleum-related compounds** from motor oil drips, leaks from vehicles, and minor fuel and oil spills.

Other potentially hazardous chemicals end up in wastewater and the environment from products, including but not limited to pesticides, personal care products, and pharmaceuticals. As part of the *Clean Water Plan* and *Clean Water, Healthy Habitat*

initiative, the King County Department of Natural Resources is developing action items and strategies to reduce pollutants, including copper, nanosilver, PCPs, PFAS, unregulated phthalates, zinc, phosphorus, and nitrogen. As a partner agency in our Program, we can collaborate through shared resources, information, and strategies to achieve an overlapping goal to prevent pollutants from entering the water and waste streams.

¹ San Mateo County, "San Mateo County HHW Report."

² Washington State Department of Ecology, "Focus on Puget Sound: Puget Sound Toxics Assessment," Publication Number: 11-03-060 (November 2011).

<https://apps.ecology.wa.gov/publications/SummaryPages/1103060.html>

Table 4-14 Estimation of HHW and SQG generation and disposal

	Household and SQG Hazardous Waste in 2019	HHW Low Estimate (Tons)	HHW High Estimate (Tons)	SQG Low Estimate (Tons)	SQG High Estimate (Tons)	Sources and Notes
1	Estimated total generated	10,300	20,600	10,300	20,600	Estimated assuming that 0.5% to 1% of total municipal solid waste generated is HHW and that SQGs generate a similar amount.
2	Properly managed	1,700	1,700	900	900	
3	Program Sites	1,600	1,600	100	100	Based on Program records.
3	Program-funded city and Tribal events	100	100	NA	NA	Based on Program records.
3	Private collectors	NA	NA	800	800	Data from Ecology.
2	Estimated stored, unknown, or improperly managed	8,600	18,900	9,400	19,700	
3	Estimated disposed of in garbage	3,500	3,500	2,100	2,100	Hazardous waste found in garbage from waste characterization studies conducted for King County (all sectors in 2019) and Seattle Public Utilities (residential in 2014, commercial in 2016, and Self-Haul in 2018). Excludes medical waste and latex paint.
3	Estimated remainder: fate unknown	5,100	15,400	7,400	17,700	Represents the estimated remainder of waste, which may be stored, released to the environment, or disposed of through other methods, approximately 50-85% of total generated.

Note: Figures have been rounded to the nearest thousand and may not appear to sum to the subtotals. Percentages were calculated based on the non-rounded counts. Numbers in the first column indicate sub-categories for people using screen-readers.

Sources: Total generation in King County was compiled using waste characterization studies commissioned by the [King County Solid Waste Division](#), waste characterization studies commissioned by [Seattle Public Utilities](#), and the Seattle Public Utilities [2019 Annual Waste Prevention and Recycling Report](#).

5 Priority Issues and Chemicals of Concern



Working through policy and prevention efforts to promote safer alternatives, safer use, and proper storage will reduce chemical exposures to our workers and residents. These efforts will also ultimately reduce the amount of hazardous waste disposed of downstream, which will protect our community and the environment.

We conducted an initial review of the hazardous materials that the environment, residents, and workers in King County and nationally could be exposed to. These materials included in-use products and chemicals as well as wastes. We narrowed this long list by considering several criteria based on our Program's *Issue Development Framework* (available upon request), including:

- Is addressing the exposure within our Program's domain?
- Is there evidence of exposures in King County residents or workers or to the environment?
- Are solutions available to address the exposure?
- Are vulnerable populations or environmental receptors potentially impacted?

As a result of this review, several issues rose to the top, many of which we have worked on in the past. We included these issues because they still represent a threat to human health and/or the environment.

This list is preliminary and will require:

- Research to confirm that we are authorized to work on these issues.
- Stakeholder input from Program staff and the community on these and other issues.
- More in-depth research to assess which of these issues should be our highest priorities over the next 10 years.

5.1 Hazardous Chemicals in Products around the Home

Consumer Cleaning Products

What's the problem?	- Chemicals in consumer cleaning products, such as disinfectants, bleach, all-purpose cleaners, and bathroom cleaners, pose a range of health risks. - Chronic exposure to consumer cleaning products is associated with asthma, other respiratory illnesses, wheezing in early childhood, cancer, endocrine disruption, and kidney damage.
Who is exposed?	- In King County, household cleaners were the most frequent substance involved in non-pharmaceutical household poisonings documented by Washington Poison Center. - Cleaning chemicals also have a disproportionate effect on infants and children. Frequent exposure to common household cleaning products can increase children's risk of developing asthma. - Domestic workers face disproportionate exposures to cleaning chemicals. Nationally, over half are from communities of color and over nine in ten are women.
What have other programs done? What more could be done?	Communication/information, residential outreach, and behavior change campaigns: - Outreach and education about safer consumer cleaning products to residents, such as U.S. EPA Safer Choice products and home-made cleaning products. - U.S. EPA resources and many jurisdictions' safer cleaning and disinfecting campaigns geared toward residential users and domestic workers. Technical assistance and incentives: - Leverage current and previous efforts with domestic workers by our Program such as "Cleaning with Caution" workshops and distribution of safer cleaning kits. Research: - Evaluate the hazards associated with existing products and make recommendations for safer alternatives. Work with product developers to evaluate safety and facilitate implementation.

Sources:

Economic Policy Institute, [Domestic Workers Chartbook](#) (2020)

Parks et al, Association of use of cleaning products with respiratory health in a Canadian birth cohort. *Canadian Medical Association Journal*, 2020; 192 (7): E154 DOI: [10.1503/cmaj.190819](https://doi.org/10.1503/cmaj.190819)

Washington Poison Center, Database Export of Human Exposures to Non-Pharmaceutical Substances in King County from January 1, 2019 to May 31, 2020, (accessed June 2020)

Hazardous Home Repair Products

What's the problem?	– Home repair workers and do-it-yourself residents (DIYers) are exposed to various solvents, such as paint/varnish stripper, as well as asbestos, paint, and spray polyurethane foam. Many DIYers are not aware of the risks associated with these products. – Many of these chemicals cause cancer, neurotoxicity, and respiratory illness, including asthma.
Who is exposed?	– Residential repair staff. – Residential DIYers.
What have other programs done? What more could be done?	Communication/information, residential outreach, and behavior change campaigns: – Work with trade schools to teach safer alternatives. – Outreach campaign to DIYers about safer products and practices. Policies and regulations: – In 2019, U.S. EPA banned the sale of methylene chloride (a common paint stripper) for consumers, but it is still allowed for professional use. – California Department of Toxics Substances Control adopted regulation in 2018 for spray polyurethane foam with unreacted methylene diphenyl diisocyanate (MDI). Research: – Evaluate the hazards associated with existing products and make recommendations for safer alternatives. Work with product developers to evaluate safety and facilitate implementation.

Sources:

EPA Bans All Retail Distribution of Methylene Chloride

<https://www.epa.gov/newsreleases/epa-bans-all-retail-distribution-methylene-chloride-consumers-paint-and-coating-removal>

Lead in Cookware

What's the problem?	– Cookware and utensils may contain lead, cadmium, and arsenic. These compounds can leach from cookware and enter food, exceeding the recommended public health guidelines. Many aluminum cookware items are made from scrap metal in various African, Middle Eastern, and Asian countries. Ceramics, glazes, and paints in cookware from other countries can also contain lead. – Lead exposure can affect neurological and intellectual development and cause memory loss, high blood pressure, kidney problems, and anemia. – Cadmium and arsenic are both known carcinogens.
Who is exposed?	– Immigrant and refugee communities who use lead-containing cookware and utensils. – While lead can affect people of all ages, it has a profound effect on fetuses, infants, and children and their developing brains. – Cadmium and arsenic can impact people of all ages.
What have other programs done? What more could be done?	Technical assistance and incentives: – Leverage previous and current efforts conducted by our Program's Residential Services, including characterizing cookware, testing cookware with an X-ray fluorescence machine, identifying safer alternatives, and engaging with community. – Provide replacement cookware and/or suggestions on replacement cookware to residents when they turn in lead-containing cookware. Research: – Measure the amount of lead released from aluminum cookware to estimate daily dose. This information could be used to develop a health-based standard for lead in metal cookware. Communication/information, residential outreach, and behavior change campaigns: – Identify other communities that use lead-containing cookware in King County. – Educate communities about the risk of aluminum cookware and about alternatives.

Sources: OK International. "Cookware made with scrap metal contaminates food: Study across 10 countries warns of lead and other toxic metals." ScienceDaily. 23 January 2017. www.sciencedaily.com/releases/2017/01/170123110345.htm.

Mercury in Lighting, Thermostats, Thermometers, and Batteries

What's the problem?	– Mercury has been used extensively in thermostats, fluorescent lighting, thermometers, batteries, and other products. – The State of Washington implemented many efforts to phase out and restrict the use of mercury-containing products. However, some residents and public buildings still have fluorescent lighting, thermostats, thermometers, and batteries. – Health effects include neurotoxicity, loss of peripheral vision, lack of coordination of movements, impairment of speech, memory loss, and heart damage.
Who is exposed?	– Mercury can affect people of all ages but has the most severe effects on developing fetuses and young children.
What have other programs done? What more could be done?	Technical assistance and incentives: – Provide rebates to purchase LED lights and switches from fluorescent lights. Policies and regulations: – The State of Washington's <i>Mercury Chemical Action Plan</i> bans the sale of certain mercury-containing compounds. The plan requires the labeling of mercury-containing light bulbs and lamps and the removal of mercury from elementary and high schools. Communication/information, residential outreach, and behavior change campaigns: – Educate residents and businesses on alternatives products without mercury and proper disposal of mercury-containing products.

Sources:

US Environmental Protection Agency, "Health Effects of Exposures to Mercury"
<https://www.epa.gov/mercury/health-effects-exposures-mercury>

Residential Pesticides

What's the problem?	– Pesticide application in residential indoor and outdoor gardens, multifamily housing units, and by residential property management can pose various health concerns for residents. – Health effects include pediatric cancers, adverse birth outcomes, asthma, and neurobehavioral and cognitive deficits.
Who is exposed?	– Low-income and multifamily public housing can have high levels of pest infestations. Nationally, 75% of low-income multifamily housing has high levels of pesticide residues. – Pesticide exposure is of particular concern for developing fetuses, infants, and children because their immature livers and kidneys cannot eliminate pesticides as effectively as adult livers and kidneys.
What have other programs done? What more could be done?	Residential outreach and behavior change campaigns: – Leverage previous work conducted by our Program, including promoting the use of the Grow Smart, Grow Safe outreach materials and education for landscape professionals who serve residents. – Promote using Integrated Pest Management (IPM) techniques to residents, multifamily unit property managers, and residential landscapers, which can reduce or eliminate the need for pesticides.

Sources: Wang, Changlu et al. "Survey of pest infestation, asthma, and allergy in low-income housing." *Journal of community health* vol. 33,1 (2008): 31-9.
doi:10.1007/s10900-007-9064-6

Skin-Lightening Products Containing Mercury

What's the problem?	– Mercury, methyl mercury, and hydroquinone are found in topical skin-lightening products. – These chemicals are associated with neurotoxicity, skin cancer, muscle control loss, speech impairment, memory loss and heart damage.
Who is exposed?	– Skin-lightening products are primarily used by East African, Hispanic/Latinx, and Asian communities. – Mercury has the most severe effects on developing fetuses and young children.
What have other programs done? What more could be done?	Residential outreach and behavior change campaigns: – Leverage previous outreach conducted by our Program. – Minnesota has conducted extensive outreach and educational campaigns around the dangers of these products, especially to East African, Hmong, and Hispanic/Latinx communities. Policies and regulations: – FDA already restricts the sale of mercury in skin products. Many products are illegally manufactured or sold in stores in Hispanic/Latinx, Asian, East African, and South Asian communities. – Hydroquinone is still allowed in personal care products in the U.S. but is banned in the European Union.

Sources: Minnesota Department of Health, *Skin lightening products*
<https://www.health.state.mn.us/communities/environment/skin/index.html>

Toxic Children's Products

What's the problem?	– Children are exposed to many heavy metals and plasticizers from children's toys, jewelry, and dishware, resulting in neurological developmental issues and behavioral problems. – These products contain harmful ingredients such as lead, phthalates, flame retardants, bisphenols, polyvinyl chloride (PVC), cadmium, formaldehyde, benzene, and styrene.
Who is exposed?	– Developing fetuses, infants, and children.
What have other programs done? What more could be done?	Communication/information, residential outreach, and behavior change campaigns: – Leverage previous Program work in this area to educate communities about risk from products and how to avoid these products. – Identify products with potential hazards from dollar stores/discount stores and products manufactured in Mexico or China for informational campaign. Policies and regulations: – Washington's Children's Safe Products Act limits the use of lead, cadmium, and six different phthalates sold in Washington.

Sources:

Lipscomb ST, McClelland MM, MacDonald M, Cardenas A, Anderson KA, Kile ML. Cross-sectional study of social behaviors in preschool children and exposure to flame retardants. *Environ Health*. 2017;16(1):23. Published 2017 Mar 9. doi:10.1186/s12940-017-0224-6

Unwanted Medications

What's the problem?	– Prescription and over-the-counter medications are often thrown in the garbage or flushed down the toilet. These actions can have profound effects on marine and wildlife.
Who is exposed?	– Marine life and other wildlife. – Children and residents from accidental poisoning.
What have other programs done? What more could be done?	Policies and regulations: – King County and Washington State have Extended Producer Responsibility (EPR) collection for unwanted medication, but the program may need to expand to areas in King County where medication drop-off sites are not readily available.

5.2 Hazardous Exposures in SQGs

Automotive Detailing and Car Washing Products

What's the problem?

- Auto detailing and car wash workers are exposed to solvents, waxes, paints, fragrances, and other chemicals that are linked to dermatitis and asthma.

Who is exposed?

- Auto detailing and car wash workers is a predominantly male and immigrant workforce.

What have other programs done? What more could be done?
Technical assistance and incentives:

- Business outreach about safer alternative car wash products, practices, and personal protective equipment (PPE) usage.
- Work with Puget Sound Car Wash Association, Western Carwash Association, and International Detailing Association to educate workers.
- Leverage previous efforts by our Program, such as distribution of personal protective equipment (PPE), spill kits, and secondary containment for products.

Research:

- Evaluate the hazards associated with existing products and make recommendations for safer alternatives. Work with product developers to evaluate safety and facilitate implementation.

Sources:

Monney I, Donkor EA, Buamah R. Clean vehicles, polluted waters: empirical estimates of water consumption and pollution loads of the carwash industry. *Heliyon*. 2020;6(5):e03952. Published 2020 May 13. doi:10.1016/j.heliyon.2020.e03952

Automotive Paints and Refinishing Chemicals

What's the problem?	- Auto body painters are exposed to many chemicals, including solvent-borne paints, solvent-based paint gun washers, and paint strippers such as methylene chloride. - These chemicals have several health effects such as cancer, neurotoxicity, reproductive and developmental toxicity, and kidney and liver damage.
Who is exposed?	- Auto body painters are primarily male. - Business owners are predominantly White while employees are more likely to be BIPOC but not dominated by one race/ethnicity.
What have other programs done? What more could be done?	Technical assistance and incentives: - Leverage previous and efforts from our Program, such as financial incentives for auto body shops to transition to waterborne basecoats, safer alternative stakeholder interviews, and efforts by the EnviroStars program. - Vouchers for personal protective equipment such as respirators masks and supplied-air respirators. - Additional opportunities include additional outreach and education on safer alternatives—such as waterborne paints and water-based paint gun cleaning equipment and products—and technical assistance with managing waterborne waste streams. Policies and regulations: - In 2019, U.S. EPA banned methylene chloride for consumer use, but it is still allowed for commercial use. King County could regulate the use of methylene chloride for professional use. - Minnesota recently banned the use of trichloroethylene (TCE), a paint remover/degreaser. Research: - Evaluate the hazards associated with existing products and make recommendations for safer alternatives. Work with product developers to evaluate safety and facilitate implementation.

Sources:

Vlaanderen J, Straif K, Pukkala E, Kauppinen T, Kyrrönen P, Martinsen JJ, et al. Occupational exposure to trichloroethylene and perchloroethylene and the risk of lymphoma, liver, and kidney cancer in four Nordic countries. *Occup Environ Med.* 2013;70:393–401

Automotive Products and Wastes

What's the problem?	Auto mechanics and technicians are chronically exposed to multiple hazardous products and wastes, including brake cleaners, degreasers, solvents, and oils. Many of these products are associated with cancer, neurotoxicity, and kidney, liver, and reproductive harm.
Who is exposed?	- Auto mechanics and technicians. - In King County, nearly one-third of workers at automotive repair and maintenance businesses are BIPOC (see Table 3-1), including Hispanic/Latinx, Russian, Ethiopian, and Somali communities.
What have other programs done? What more could be done?	Technical assistance and incentives: - Leverage previous efforts by our Program, such as technical assistance visits and vouchers to purchase PPE and safer alternatives. Many safer practices and products exist for this industry. The EnviroStars green business program in King County covers this industry. - The Washington State Department of Ecology is starting an emphasis program on parts washers and degreasers. The opportunity exists for our Program to partner with Ecology to evaluate and recommend safer alternative products and processes. Research: - Evaluate the hazards associated with existing products and make recommendations for safer alternatives. Work with product developers to evaluate safety and facilitate implementation.

Commercial Pesticides

What's the problem?	– Pesticides are chemical substances used to prevent, destroy, repel, or mitigate any pests ranging from microorganisms to insects, rodents, and weeds. Exposure to commercial pesticides by landscapers and gardeners can result in adverse health outcomes. – Primary health concerns associated with pesticides are cancers, birth defects, and learning disabilities. – Employees of the floral industry are exposed to various chemicals in addition to pesticides, including cleaners, sealers, preservatives, disinfectants, dyes, and colorants.
Who is exposed?	– Commercial pesticide use includes landscape use, agriculture use, and use in property management. In King County, many landscapers are Hispanic/Latinx. – Florists, growers, wholesalers, retailers, designers, and delivery personnel are also exposed to pesticides. This industry is predominantly female and often consists of an immigrant workforce.
What have other programs done? What more could be done?	Technical assistance and incentives: – Many successful Integrated Pest Management (IPM) techniques can help to reduce and/or eliminate the use of pesticides. – Leverage expertise and materials previously developed by our Program to address commercial pesticides, such as the use of “Natural Landscaping” and “Grow Smart, Grow Safe” outreach materials.

Commercial Printing Chemicals

What's the problem?	- Commercial print workers are exposed to chemicals in the printing processes, such as paints, printing inks, polychlorinated biphenyls (PCBs), and solvents. - These products have been linked with liver toxicity, birth defects, adverse reproductive function, and endocrine disruption.
Who is exposed?	- Commercial print workers, particularly women of childbearing age. - In King County, 37% of printing staff are BIPOC (see Table 3-1).
What have other programs done? What more could be done?	Technical assistance and incentives: - Outreach and incentives to printing shops about safer products, such as non-chlorinated pigments and products that do not contain PCBs. Research: - Evaluate the hazards associated with existing products and make recommendations for safer alternatives. Work with product developers to evaluate safety and facilitate implementation.

Construction, Building Materials, Floor Refinishing Products, and Paint

What's the problem?	- Construction workers, hardwood refinishers, and painters are exposed to building materials, such as paint, solvents, paint strippers, flame retardants, and formaldehyde during the installation and curing process. - Health effects include asthma, cancer, neurotoxicity, reproductive toxicity, birth defects, and neurological impairment for children.
Who is exposed?	- Construction workers, hardwood refinishers, and painters. In King County, 24-40% of workers are BIPOC, depending on the type of construction sub-category (see Table 3-1). - Building inhabitants and residents with prolonged exposure. - Low-income population and residents living in multifamily buildings, where pollutants can transfer from dwelling to dwelling. - Developing fetuses and children are more susceptible to indoor pollutants from building materials since they spend more time indoors. The pollutants can affect their lung development and immune system.
What have other programs done? What more could be done?	Technical assistance and incentives: - Education and outreach around which chemicals are hazardous, use of safer products and storage practices, and protective equipment, such as respirators, eye protection, and gloves. - Green building/LEED program and practices. California's CALGreen Code and Safer Consumer Product Programs have focused on safer building materials. - International Living Future Institute's Red List identifies harmful materials in the building industry. - EnviroStars has safer alternatives details built into the applications. - Promote the use of waterborne hardwood refinishing products with GreenSeal or GREENGUARD certifications. Research: - Evaluate the hazards associated with existing products and make recommendations for safer alternatives. Work with product developers to evaluate safety and facilitate implementation.

Demolition Dust and Debris

What's the problem?	– Demolition workers face similar exposures as construction workers and often are the same workers. Exposures include lead, asbestos, silica, formaldehyde, PCBs (polychlorinated biphenyls), mold, and other hazardous materials. – Health effects include silicosis, chronic obstructive pulmonary disease, impaired kidney function, high blood pressure, nervous system, and neurobehavioral effects.
Who is exposed?	– Demolition workers, predominantly male and from Hispanic/Latinx community. Additional exposure to families of workers from dust exposure they bring home. – Surrounding communities affected by chemical-laden dust during demolition.
What have other programs done? What more could be done?	Technical assistance and incentives: – Promote alternatives include a green building program. Policies and regulations: – The City of Portland adopted an ordinance and comprehensive program on deconstruction requirements. – The State of Oregon implemented a bill to manage lead and asbestos associated with demolition of homes.

Sources:

Jacobs DE, Cali S, Welch A, et al. Lead and other heavy metals in dust fall from single-family housing demolition. *Public Health Rep.* 2013;128(6):454-462. doi:10.1177/003335491312800605

Dry Cleaning Chemicals

What's the problem?	- Fabric cleaning traditionally involves the dry cleaning solvent perchloroethylene (PERC). - The National Institute for Occupational Safety and Health (NIOSH) has designated PERC a "potential occupational carcinogen." PERC also affects the central nervous system and immune system, as well as the liver and kidneys.
Who is exposed?	- PERC exposure primarily affects: • Workers at dry cleaners. In King County, most dry cleaning business owners are Korean, and employees are primarily Hispanic/Latinx. In King County, 56% of garment cleaning workers are BIPOC (see Table 3-1). • Customers of garment cleaning services using PERC. • People who live or work in buildings that are co-located with a dry cleaning business. - PERC exposure can also occur when leaks or improper disposal of PERC contaminates groundwater/drinking water.
What have other programs done? What more could be done?	Technical assistance and incentives: - Many efforts, such as providing grants to switch to safer garment cleaners, are happening nationwide. - Our Program is issuing grants of \$20,000 for PERC dry cleaners to switch to wet cleaning. Ecology is also providing grants statewide (\$20,000 for wet cleaning or \$10,000 for hydrocarbon). - Our Program should consider how to implement change in dry cleaners who are resistant to voluntarily switching from PERC. - Our Program could also promote the use of safer spot cleaning chemicals in all dry cleaning operations. Policies and regulations: - California banned the installation of new PERC dry cleaning machines in 2007, and all PERC machines must be taken out of service by 2023. - In 2019, the City of Minneapolis banned the use of PERC machines.

Sources:

Ceballos DM, Whittaker SG, Lee EG, et al. Occupational exposures to new dry cleaning solvents: High-flashpoint hydrocarbons and butylal. *J Occup Environ Hyg.* 2016;13(10):759-769. doi:10.1080/15459624.2016.1177648

Furniture Manufacturing and Refinishing Products

What's the problem?	– Furniture manufacturers and refinishers are regularly exposed to wood dust, flame retardant chemicals, and chemical solvents like formaldehyde and other volatile organic compounds. – Health effects from these chemicals include endocrine and thyroid disruption, reproductive toxicity, cancer, neurodevelopment problems, infertility, and respiratory irritation. – Many flame retardants have been voluntarily phased out by some manufacturers. However, many other chemicals are used regularly in furniture and above Permissible Exposure Limits (PELs) established by the federal Occupational Safety and Health Administration (OSHA) and the Washington Industrial Safety and Health Act (WISHA).
Who is exposed?	– Furniture manufacturers and refinishers workers working with upholstered furniture, who are regularly exposed to flame retardant chemicals. In King County, 33% of workers are BIPOC (see Table 3-1). – Furniture users, office workers, developing fetuses, infants, and children.
What have other programs done? What more could be done?	Technical assistance and incentives: – Interventions including focused outreach to this sector around PPE, alternative products, and financial incentives. Communication/information campaigns: – Outreach emphasizing that furniture made from solid wood, stainless steel, and particle board does not contain formaldehyde. Policies and regulations: – Change flammability standards that still require using hazardous chemicals for furniture designed for offices, schools, hospitals, and other institutions. Research: – Evaluate the hazards associated with existing products and make recommendations for safer alternatives. Work with product developers to evaluate safety and facilitate implementation.

Hair Salon Chemicals

What's the problem?	– Hair salon workers are exposed to several harmful products, especially from chemical straighteners and hair dye. Formaldehyde in chemical straighteners poses a particular concern. – Health effects from these products include cancer, asthma, reproductive disorders, and depression.
Who is exposed?	– Hair salon workers, primarily woman of child-bearing age. In King County, nearly half of personal care services workers are BIPOC (see Table 3-1). – Hair salon customers. – Developing fetuses.
What have other programs done? What more could be done?	Technical assistance and incentives: – Conduct technical assistance and provide vouchers to hair salons to purchase safer hair products, personal protective equipment, and ventilation. – At the federal level, OSHA has created some educational materials. – A few advocacy groups, such as Women's Voices for the Earth and Black Women for Wellness, have conducted outreach. Policies and regulations: – Develop policy requiring ventilation and/or personal protective equipment when conducting chemical hair straightening and hair dyeing. – California recently banned formaldehyde and 23 other chemicals from use in cosmetics. Research: – Evaluate the hazards associated with existing products and make recommendations for safer alternatives. Work with product developers to evaluate safety and facilitate implementation.

Sources: California Legislative Info, Assembly Bill (AB) 2762-Cosmetics product safety

https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201920200AB2762.

Hazardous Materials in Automotive Recyclers and Dismantlers

What's the problem?	– Auto recyclers, dismantlers, and wreckers are exposed to a variety of materials including scrap metal, auto shredder residue (glass, fabric, paper, wood, rubber, and plastic), car tires, mercury from anti-lock brakes, lead in wheel weights, leaking gasoline, diesel fuel, battery acid, and motor oil. – Many of these materials contain chemicals that can ignite. – Multiple potential adverse health effects, including respiratory disease and skin burns.
Who is exposed?	– Auto dismantlers and recycling workers (recycling centers/scrap yards have considerable occupational fatality rates). – Unlicensed dismantlers that may not be following guidelines and permitting protocols set by OSHA and Washington state. – Residents and habitats near recycling/dismantling centers. – Contaminated stormwater and wastewater discharge has potential to harm marine life.
What have other programs done? What more could be done?	Technical assistance and incentives: – Provide assistance and incentives around engineering controls and work practices, spill prevention, spill plans, spill kits, and use of PPE with chemicals. Research: – Evaluate exposures in this industry and provide recommendations for safe work practices, in collaboration with occupational health experts.

Sources:

Poole CJM, Basu S. Systematic Review: Occupational illness in the waste and recycling sector. *Occup Med (Lond)*. 2017;67(8):626-636.
doi:10.1093/occmed/kqx153

Hazardous Materials in Boatyards

What's the problem?	- Boatyard workers are exposed to various chemicals, including those in paints and paint strippers. - Health effects associated with these products include respiratory illness, asthma, neurotoxicity, and cancer. - According to the Bureau of Labor Statistics, boatyard/shipyard workers have a higher fatality, injury, and illness incidence rate when compared to other U.S. workers.
Who is exposed?	- Boatyard workers and boat/vessel repair and maintenance workers. - Workers are primarily male. In King County, 25% of boat builders are BIPOC (see Table 3-1).
What have other programs done? What more could be done?	Technical assistance and incentives: - University of Alaska Fairbanks created a handbook on tips for boatyard hazards and worker safety. Research: - Evaluate the hazards associated with existing products and make recommendations for safer alternatives. Work with product developers to evaluate safety and facilitate implementation.

Selected Sources:

NAICS 3366 Fatalities in all sectors, all U.S., all ownerships, 2011–2016. In Census of Fatal Occupational Injuries. Washington DC: U.S. Department of Labor, Bureau of Labor Statistics (<https://www.bls.gov/data/#injuries>)

The University of Alaska Fairbanks, 2019, "Boatyard Hazards – Tips for Protecting Worker Safety and Health" (<https://seagrant.uaf.edu/bookstore/copy.php?id=12470>)

Hazardous Chemicals in Foundries

What's the problem?	– Exposure of foundry workers to heavy metals as well as other chemicals, including binders and solvents. – Health effects associated with this industry include lung cancer and respiratory disease.
Who is exposed?	– Furnace tenders, smelters, casters, ladle-men, pourers, crane drivers, fettlers, welders, flame-cutting operators, pipefitters, machinists, boilermakers, blacksmiths, and millwrights.
What have other programs done? What more could be done?	Technical assistance and incentives: – Some organizations, such as the Labor Occupational Health Program at the University of California at Berkeley, have conducted outreach and education to this industry.

Sources:

Lai CY, Lai CH, Chuang HC, et al. Physicochemistry and cardiovascular toxicity of metal fume PM_{2.5}: a study of human coronary artery endothelial cells and welding workers. *Sci Rep*. 2016;6:33515. Published 2016 Sep 19. doi:10.1038/srep33515

Hazardous Materials in Healthcare

What's the problem?	- Healthcare facilities use various chemicals, such as cleaners, disinfectants, formaldehyde, pesticides, and flame retardants. - Health effects include skin sensitization, endocrine disruption, and respiratory disease including asthma.
Who is exposed?	- Healthcare, medical workers, custodians, and patients. - In King County, 38% of workers that work at general medical and surgical hospitals are BIPOC (see Table 3-1).
What have other programs done? What more could be done?	Technical assistance and incentives: - Many organizations, such as Healthcare without Harm and Practice Green Health, have programs throughout the nation to work directly with healthcare facilities and medical offices on using safer disinfectants, using IPM practices, and reducing the use of toxic chemicals. They encourage reducing toxicity through environmentally preferable purchasing and through changing products, services, and equipment. These programs have also provided education on hazardous chemicals to medical staff as well as surrounding communities. Many medical institutions—such as University of California at San Francisco, Memorial Sloan-Kettering Cancer Center Advocate, Seattle Children's hospital, Cleveland Clinic, and several other medical institutions—have implemented measures to address chemicals of concern. Research: - Evaluate the hazards associated with existing products and make recommendations for safer alternatives. Work with product developers to evaluate safety and facilitate implementation.

Sources:

Practice Green Health, 2019 Sustainability data

<https://practicegreenhealth.org/tools-and-resources/2019-sustainability-data>

Gore AC, Chappell VA, Fenton SE, et al. EDC-2: The Endocrine Society's Second Scientific Statement on Endocrine-Disrupting Chemicals. *Endocr Rev.*

2015;36(6):E1-E150. doi:10.1210/er.2015-1010

Hazardous Materials in Marinas

What's the problem?	– Marina workers conduct small repairs and maintenance on boats that can contaminate marinas. Some of the harmful products that they use are boat paints and solvents. Scraped-off paint can contain heavy metals such as lead, mercury, and arsenic. – Health effects associated with these materials are asthma, cancer, neurotoxicity, reproductive toxicity and birth defects,
Who is exposed?	– Marina workers and boat repair workers. – Marine wildlife.
What have other programs done? What more could be done?	Technical assistance and incentives: – Outreach to marinas on safer products and practices. Research: – Evaluate the hazards associated with existing products and make recommendations for safer alternatives. Work with product developers to evaluate safety and facilitate implementation.

Hazardous Chemicals in Navigation Centers, Temporary Shelters, and Temporary Housing

What's the problem?	– Navigation centers, temporary shelter, and temporary housing centers use a variety of hazardous chemicals, including pesticides (insecticides and rodenticides), heavy disinfectants and cleaning products use (e.g., bleach, peroxides, and quaternary ammonium compounds), fragrances, and air fresheners. They also use building maintenance products that can pose concerns. Older facilities may also contain lead-based paint. – Multiple potential adverse health effects, including respiratory disease, neurotoxicity, and cancer.
Who is exposed?	– Shelter residents, many of whom experience other vulnerabilities. – Shelter custodians and staff.
What have other programs done? What more could be done?	Technical assistance and incentives: – Partner with King County Department of Public Health in its efforts to provide health and safety guidance to shelters on using safer cleaners, safer disinfectants, and IPM practices. Research: – Evaluate the hazards associated with existing products and make recommendations for safer alternatives. Work with product developers to evaluate safety and facilitate implementation.

Hazardous Materials in Warehousing

What's the problem?	– Warehouse workers are regularly exposed to cleaning products, such as bleach and ammonia, pesticides, degreasers, and heavy machinery that require gas/oil. – Ventilation is often limited. – Health effects associated with these products include respiratory irritation, burning eyes, and neurotoxicity.
Who is exposed?	– Warehouse workers are predominantly male nationally. In King County, workers are roughly 50% BIPOC (see Table 3-1).
What have other programs done? What more could be done?	Technical assistance and incentives: – Outreach to warehouses on safer products and practices. Research: – Evaluate the hazards associated with existing products and make recommendations for safer alternatives. Work with product developers to evaluate safety and facilitate implementation.

Sources:

Vandersmissen GJM, Schouteden M, Verbeek C, Bulterys S, Godderis L. Prevalence of high cardiovascular risk by economic sector. *Int Arch Occup Environ Health*. 2020;93(1):133-142. doi:10.1007/s00420-019-01458-9

Institutional Cleaning Products

What's the problem?	– The professional cleaning workforce is exposed to many cleaning chemicals daily and has a much higher exposure to cleaning products compared to the general population. – Respiratory and dermatological disease are the most common adverse health outcomes from cleaning products for professional custodial cleaners. Additional health effects include, endocrine disruption, liver damage, cancer, and reproductive harm.
Who is exposed?	– Professional custodians, janitors, building maintenance workers, and hotel cleaners. – In King County, nearly half of workers in businesses that provide services to building and dwellings (see Table 3-1) are BIPOC, although this can vary depending on the janitorial services sub-category. – Developing fetuses, infants and children, office workers, and hotel patrons.
What have other programs done? What more could be done?	Technical assistance and incentives: – Technical assistance and outreach about safer practices and products. – Vouchers to purchase safer cleaning products. – Several third-party cleaning product certifications, such as Cradle to Cradle, Green Seal, Safer Choice and Ecologo, have stringent health, environmental, and performance standards. – Leverage current and previous efforts by the Program, such as "Cleaning with Caution" workshops and the distribution of safer cleaning kits. Policies/regulations: – Several jurisdictions that have had success with implementing green cleaning at their own facilities. Many green cleaning programs are offered through product manufacturers. Research: – Evaluate the hazards associated with existing products and make recommendations for safer alternatives. Work with product developers to evaluate safety and facilitate implementation.

Sources:

Hazardous substances in frequently used professional cleaning products Gerster FM 2014 Jan-Mar;20(1):46-60. doi: 10.1179/2049396713Y.0000000052. PMID: 24804339; PMCID: PMC4096065

Machining and Metal Cutting Chemicals

What's the problem?	– Machinists, including aerospace workers, are exposed to a wide variety of products, such as antifreeze, anti-foaming agents, paint, sanding agents, solvents, and various oils and fluids. – Health effects include cancer, neurotoxicity, and kidney, liver, reproductive, and developmental damage.
Who is exposed?	– Machinists and aerospace workers are primarily male. In King County, 25% of workers are BIPOC (see Table 3-1).
What have other programs done? What more could be done?	Technical assistance and incentives: – Leverage our Program's existing technical assistance, which includes having worked with 20 machine shops to develop best practices. – Outreach and education about less toxic cleaners and practices to extend the life of metal working fluids. – Outreach and education to switch from oil- and solvent-based products to water-based products. Research: – Evaluate the hazards associated with existing products and make recommendations for safer alternatives. Work with product developers to evaluate safety and facilitate implementation.

Sources:

Wong O. Carcinogenicity of trichloroethylene: an epidemiologic assessment. Clin Occup Environ Med. 2004 Aug;4(3):557-89, vii. doi: 10.1016/j.coem.2004.03.013. PMID: 15325321.

Nail Salon Chemicals

What's the problem?	- Nail salon workers are exposed to several harmful products during the manicure/pedicure process, especially from artificial nail treatments. - Health effects from these products include skin dermatitis, asthma, reproductive loss, and liver disease.
Who is exposed?	- Nail salon workers are primarily Vietnamese, immigrant women of childbearing age. - In King County, 49% of personal care services workers are BIPOC. - Developing fetuses, young children, and workers' children who are at the nail salon due to a lack of childcare options. - Nail salon customers.
What have other programs done? What more could be done?	Technical assistance and incentives: - Leverage previous efforts by our Program, which worked closely with the nail salon industry, provided assistance on choosing safer alternatives, and provided vouchers to salons to purchase safer nail products and ventilation. - A few advocacy groups, such as California's Healthy Nail Salon collaborative, have conducted extensive outreach and research. - California's Healthy Nail Salon collaborative includes a recognition program, which provides technical assistance and training on safer products, personal protective equipment, and practices. It also provides vouchers for ventilation equipment. Policies and regulations: - California Department of Toxics Substances Control currently lists methyl methacrylate and toluene, which are ingredients in nail products, as priority products for its safer consumer product regulations. Research: - Evaluate the hazards associated with existing products and make recommendations for safer alternatives. Work with product developers to evaluate safety and facilitate implementation.

Sources:

California Department of Toxic Substances Control, *Safer Consumer Product Program- Toluene and MMA* <https://dtsc.ca.gov/scp/nail-products-containing-toluene/> and <https://dtsc.ca.gov/scp/nail-products-containing-mma/>

Pesticides in Public Spaces

What's the problem?	- Indoor and outdoor usage of pesticides in parks, gardens, public buildings, and schools expose people to many chemicals. - Primary health concerns are cancer, birth defects, and learning disabilities.
Who is exposed?	- Pesticide exposure is of particular concern for developing fetuses, infants, and children. - Most landscapers, gardeners, and pesticide applicators are male and Hispanic/Latinx.
What have other programs done? What more could be done?	Technical assistance and incentives: - Integrated Pest Management (IPM) techniques can reduce or eliminate the use of pesticides. - Many jurisdictions have conducted campaigns about IPM certifications and guidelines geared towards landscapers, building maintenance, schools, and pesticide applicators. - Leverage previous work conducted by our Program, including promoting the use of "Grow Smart, Grow Safe" outreach materials. Policies and regulations: - Cities have implemented various policies restricting the types of pesticides allowed in schools and parks. - In 2009, City of Seattle restricted the use of all pesticides in 250 playfields, picnic areas, community gardens, and play areas. - The Cities of Seattle, San Francisco, Austin, and Miami have restricted the use of glyphosate (an herbicide) and have updated their approved pesticides through IPM interdepartmental taskforce. Argentina, Australia, Austria, Canada, Germany and nearly 20 other countries issued glyphosate restrictions.

Sources:

Lackovic M, Schwartz A, Prado JB, Waltz J, Mitchell Y, Calvert GM. Acute Nonoccupational Pesticide-Related Illness and Injury - United States, 2007-2011. MMWR Morb Mortal Wkly Rep. 2016 Oct 14;63(55):5-10. doi: 10.15585/mmwr.mm6355a2. PMID: 27736825.

Products used in Early Childcare

What's the problem?	– Early childcare centers use a wide variety of chemicals, including pesticides, cleaners, disinfectants, flame retardants in nap mats, maintenance chemicals, and art supplies. – Health effects associated from these products include asthma, pediatric cancer, neurodevelopmental issues, and endocrine disruption.
Who is exposed?	– Children, particularly developing children, and childcare staff, teaching staff, and educational institutional staff. In King County, 44% of early childcare staff are BIPOC (see Table 3-1).
What have other programs done? What more could be done?	Technical assistance and incentives: – Leverage our Program's previous technical assistance to some schools, expanding this program to all schools and to early childcare centers. – Promote safer alternatives for cleaning products, IPM practices, and replacing nap mats with flame retardant-free alternatives. Research: – Evaluate the hazards associated with existing products and make recommendations for safer alternatives. Work with product developers to evaluate safety and facilitate implementation.

Source:

Hoang T, Castorina R, Gaspar F, Maddalena R, Jenkins PL, Zhang Q, McKone TE, Benfenati E, Shi AY, Bradman A. VOC exposures in California early childhood education environments. *Indoor Air*. 2017 May;27(3):609-621. doi: 10.1111/ina.12340. Epub 2016 Oct 26. PMID: 27659059.

Products used in Educational Institutions

What's the problem?	– Educational institutions use a wide variety of chemicals, including pesticides, cleaners, disinfectants, maintenance products, and art supplies. – Health effects associated from these products include asthma, pediatric cancer, neurodevelopmental issues, and endocrine disruption.
Who is exposed?	– Developing children, teaching staff, custodians, and other institutional educational staff. In King County, 25% of elementary and secondary school staff are BIPOC (see Table 3-1).
What have other programs done? What more could be done?	Technical assistance and incentives: – Our program previously provided technical assistance with some schools and could expand this program to all schools as well as early childcare centers. – Safer alternatives for cleaning products and IPM practices. Research: – Evaluate the hazards associated with existing products and make recommendations for safer alternatives. Work with product developers to evaluate safety and facilitate implementation.

Sources:

Hazardous substances in frequently used professional cleaning products Gerster FM 2014 Jan-Mar;20(1):46-60. doi: 10.1179/2049396713Y.0000000052. PMID: 24804339; PMCID: PMC4096065

Products used in Equipment Rental and Repair

What's the problem?	– Equipment rental and repair staff are exposed to hazardous products such as paints, solvents, paint strippers, glues, and cleaning products. The main health concerns for this industry are cancer and neurotoxicity.
Who is exposed?	– Equipment rental and repair workers. In King County, 25% of repair staff are BIPOC (see Table 3-1).
What have other programs done? What more could be done?	Technical assistance and incentives: – Leverage previous efforts by our Program, such as providing technical assistance and vouchers. Research: – Evaluate the hazards associated with existing products and make recommendations for safer alternatives. Work with product developers to evaluate safety and facilitate implementation.

Textile Chemicals/Dyes

What's the problem?	– Exposure of consumers and manufacturers to textile chemical dyes, solvents, and pigments. – Health effects include lung, bladder, colorectal, and breast cancer.
Who is exposed?	– Textile workers. In King County, 57% of textile furnishing mills workers are BIPOC (see Table 3-1). – Consumers of textile products. – Air pollution and chemical discharge from textile mills into bodies of water affect marine life.
What have other programs done? What more could be done?	Technical assistance and incentives: – Focused initiative with manufacturers to understand what chemicals and dyes they are currently using and their current disposal methods. – Industry initiatives include: • Pledges from brands to eliminate toxic chemicals from their supply chains and advance green chemistry methods. • Outdoor Industry Association's chemical management programs to help industries choose safer chemicals. • Chemical and Environmental Impacts Program (CEIP)- Industry initiative to manage chemicals in their supply chain. Residential outreach: – Educational outreach to consumers about which brands are using safer chemicals and dyes. Research: – Evaluate the hazards associated with existing products and make recommendations for safer alternatives. Work with product developers to evaluate safety and facilitate implementation.

Sources:

Avagyan R, Luongo G, Thorsén G, Östman C. Benzothiazole, benzotriazole, and their derivatives in clothing textiles—a potential source of environmental pollutants and human exposure. *Environ Sci Pollut Res*. 2015;22:5842–5849. doi: 10.1007/s11356-014-3691-0

5.3 Emerging Issues

Several hazardous materials used in consumer products arose as emerging issues. However, we need to do more research to 1) learn about the potential for impacts to health and the environment in King County, 2) determine our Program's role, and 3) learn whether it may be more effective for statewide or national agencies to tackle them. These hazardous materials include:

- Phthalates in personal care products, vinyl flooring, and food-contact materials
- PFAS (per- and polyfluoroalkyl substances) in food contact material, apparel, outdoor ware/outdoor material, carpets and rugs, carpet foam, recycled foam, upholstered furniture, stain protecting sprays, and firefighting foam
- Flame retardant chemicals in carpet foam, recycled foam, children's products, car seats, changing pads, electronics, and furniture
- Bisphenols (BPA/BPS) in food contact material
- Formaldehyde in manufactured wood/furniture
- Antimicrobials in various personal care products, cleaning supplies, and many residential products
- Electric vehicle batteries containing lithium, cobalt, and other hazardous metals
- Chemicals in vape pens

5.4 Other Potential Issues

We identified several additional issues that could potentially be considered by our Program, but they are not presented here in detail because: 1) they may not be within our domain, 2) responsibility for addressing them likely resides with other agencies or jurisdictions, 3) we have expended considerable resources on the issue in the past, and/or 4) they could likely be addressed via routine technical assistance instead of a focused effort. Examples of workplace-related exposures in this category included:

- Fluorinated chemicals in outdoor clothing and product manufacturing
- PCBs in lamp ballasts in schools and public buildings
- Silica in stone working
- Solvents in jewelry making and repair
- Miscellaneous chemical exposures in:
 - Artists' studios
 - Bicycle repair

- Dental offices
- Laboratories
- Oil refineries
- Pet care, including veterinary offices, pet stores, and pet lodging

Examples of community or environmental exposures that the Program considered but does not present in detail include:

- Arsenic from pressure treated wood
- Multiple chemicals in artificial turf (primarily used on playfields)
- Multiple chemicals in laundry detergent
- Hazardous ingredients in personal care products and cosmetics

6 Research on Other Programs



We researched services and metrics used by other leading programs through their websites and communication with their staff. Overall, research confirmed that our Program is a leader that other jurisdictions follow and look to for new ideas. We asked about:

- Metrics and approaches to measure program performance
- Prevention and policy efforts
- Communication for customers who are BIPOC, speak languages other than English, and/or live in multifamily housing
- Collection services focused on residents without vehicles, multifamily residents, and/or BIPOC residents

6.1 Prevention and Policy Efforts

Research on **prevention and policy efforts** used by other programs is integrated into the Priority Issues and Chemicals of Concern section. Actions included resident and business campaigns using communication, incentives, technical assistance, and other behavior change tools. Actions also included policies and regulations that the programs implemented or supported.

We asked about **education and outreach** for residents who are BIPOC and/or speak a language other than English. Programs elsewhere generally did not report using approaches beyond what our Program currently does. Programs elsewhere sometimes provide translated educational materials or run campaigns in languages other than English (primarily in Spanish), but no program reported using more advanced approaches such as transcreation or more intentional campaigns.

Oregon Metro has used an equity-focused approach to toxics reduction, similar to what our Program in King County is using. Metro's Toxics Reduction and Equity study examined disparities in health impacts linked to hazardous chemicals.³

Similar to our Program in King County, **San Mateo County, California** has a "Free Product Give Away Program." The County holds give-away events where it offers usable products that its HHW program collects. The County also partnered with the Nextdoor app to pilot neighbor-to-neighbor sharing through Nextdoor's "for sale and for free section." The County and Nextdoor promoted the pilot program by sending trifold mailers to residents. In the County's experience, residents are more likely to open and read official trifold mailers compared to postcards. Nextdoor also advertised the Program on their app. Participation data were not available.

³ Metro, "Toxic Reduction and Equity: Informing actions to reduce community risks from chemicals in products," (July 2019).

6.2 Performance Metrics

Programs elsewhere look to our Program as a national leader in metrics and performance measurement.

Programs elsewhere primarily use basic metrics such as pounds collected, customers served, and activity measures such as the number of events held or educational materials distributed. Programs that measure customer demographics, awareness, or the effects of a focused outreach effort typically do so through special surveys or campaign-by-campaign measurements.

Research identified a few interesting ideas for our Program to consider:

- Using scanners to automatically read driver licenses to record customer information such as name and zip code.
- When tracking the number of businesses by industry type that use SQG collection services, compare those users against the size of those industries in its service area to identify SQG industries that may be underutilizing the Program's collection services.
- Some counties have considered using sales data to estimate the generation and use of hazardous products, but sales data are expensive to obtain and not necessarily easy to use to estimate quantities of hazardous chemicals.

Our plan to implement Equity-Centered Results Based Accountability is an important innovation that will secure our role as a national leader in performance measurement as we:

- Enhance our performance metrics to measure what matters.
- Center racial equity with accountability in our performance measurement.
- Identify the root causes of inequities and issues so we can design better actions to address them.

6.3 Communications in Language, in Culture, and for Multifamily Residents

Programs elsewhere primarily use basic approaches to communicate with are BIPOC or speak languages other than English, which we know are not sufficient:

- Translations and multilingual campaigns
- Infographics and images
- Outreach at community festivals and events and on local radio

For outreach to multifamily residents, San Francisco has used mailers to property managers and residents in individual units. San Francisco has also coordinated with property managers to provide and collect battery buckets in convenient areas and to organize collection events at their properties.

6.4 Collection Services

Currently, our Program's collection services are more often used by and accessible to certain types of residents than others. Customer survey data from 2012 shows that compared to King County residents, visitors at our collection sites are less likely to be BIPOC, renters, and residents of multifamily homes. In addition, residents without access to a vehicle cannot use collection sites.

We found that programs elsewhere offer additional types of collection services that may address these issues:

- **Walk-up collection events** located near public transit that do not require visitors to have a car. Some fixed facilities also allow walk-in visitors.
- **Retail-based collection** through partnerships with retailers for specific materials that the retailer sells and that can be collected safely in stores.
- **Curbside collection** by solid waste collectors for specific materials such as batteries, motor oil, and CFLs.
- **Other home-based collection** through:
 - Visits by hazardous waste collection service staff, which our Program currently offers.
 - Collection kits that can be set outside for special, scheduled collection while residents are not home.

- Partnerships with non-profit organizations to transport residents and their waste to facilities.

Research on peer programs did not identify innovation in collection services for SQG businesses beyond a program for landlords that collected waste left behind by former tenants as household and not business waste.

A survey of San Mateo County, California, surveyed its residents about which collection methods they prefer, finding that people liked curbside collection first, followed by retail-based collection.

Walk-up Collection Events and Facilities

New York City, New York

Permanent collection sites are located outside New York City and offer walk-in options, although most participants drive due to the distance from the city.

SAFE disposal events accept specific hazardous wastes from residents on foot or by car. They are typically located near subway stations for easier access. The Department of Sanitation holds SAFE events twice a year in spring and fall in each of the five boroughs. Collection events accept a wide range of hazardous wastes including cleaners, solvents, flammables, automotive products, batteries, paints, medications, and electronics. A [promotional online video](#) shows the events. Surveys of participants show indicate that many of visitors are first-time participants.

New York City also offers five smaller pop-up collection events in areas of the city that were not close to the SAFE disposal event locations and did not receive SAFE advertising mailers. The City works with local elected officials to host these events and help set up a reservation system for drop-off times.

San Francisco County, California

San Francisco County contracts with the waste hauler Recology for HHW collection. Recology has one HHW collection facility in the county located one-quarter of a mile from a transit stop at the edge of the City of San Francisco. Residents can deliver HHW on foot. Recology has found that walk-up HHW customers are rare. Recology encourages residents without vehicles to use its home-based collection program, described below.

Retail-based Collection through Partnerships

New York City, New York

Residents in New York City can drop off sharps and pharmaceuticals at many retail and healthcare locations across the city.

State law [requires certain stores and facilities](#) to accept residential quantities of the types of hazardous wastes that they sell or frequently handle at no cost to the customer:

- Household sharps at all hospitals and nursing homes.
- Motor oil, transmission fluid, and hydraulic fluid at service stations and retailers that sell over a threshold quantity of these products.
- Rechargeable batteries, cell phones, and auto batteries at stores that sell these products.

Voluntary take-back options are available for other products at stores that choose to participate: CFLs, medications, and mercury thermostats.

San Francisco County, California

The City of San Francisco's Department of the Environment and its franchised waste hauler Recology partner with local retailers to serve as collection sites for specific hazardous wastes from residents. Accepted materials include:

- Mercury lighting: fluorescent tubes, CFL or HID bulbs
- Used motor oil and filters
- Latex and oil-based house paint
- Household batteries
- Electronics: TVs, computers, cell phones and other electronics
- Small, empty propane tanks and cylinders
- Medicine
- Sharps: needles and syringes

Santa Clara County, California

Santa Clara County partners with retailers and other [drop-off locations](#) throughout the county to collect the following special waste either voluntarily or under an extended producer responsibility (EPR) law.

State and/or county EPR laws cover the following products:

- **Medication:** community kiosks at pharmacies, hospitals, and police departments and via a mail-back program.
- **House paint:** paint stores, hardware stores, and other locations.
- **Sharps:** community kiosks at pharmacies, hospitals, medical clinics, and police departments and via a mail-back program.
- **Mercury thermostats:** wholesalers and commercial distributors.

The following products are collected voluntarily, although they may be covered by a mandatory advanced disposal fee:

- **Automotive batteries and antifreeze:** auto supply stores and/or tire shops
- **Electronics:** approved E-waste collectors and electronic recyclers.
- **Fluorescent lamps:** hardware stores, lighting stores, and other participating retailers.
- **Household batteries:** hardware stores, lighting stores, battery stores, public libraries, and senior facilities.
- **Used motor oil and oil filters:** certified auto repair, auto supply stores, and auto maintenance shops.

Home-Based Collection

Arapahoe County and City of Centennial, Colorado

The Southeast Metro Stormwater Authority (SEMSWA) contracted with Waste Management to offer a door-to-door HHW collection program for residents of unincorporated Arapahoe County and the City of Centennial. Waste Management calls its door-to-door service “At Your Door Special Collection.”

Residents call a toll-free hotline to schedule an appointment and discuss the types and quantities of acceptable materials that the service will accept. Waste Management sends the customer an HHW collection kit with instructions and a collection bag. Instructions tell residents how to set the materials outside safely for collection. They do not need to be home during their scheduled collection appointment. Residents pay \$20, and the SWMSWA covers the remaining cost of around \$90 per collection.

San Francisco County, California

San Francisco County’s residential Hazardous Waste Home Collection services program offers free HHW home pickup for residents five days per week.

Approximately 11,000 residents use this service annually. The County gives priority to disabled and elderly residents who do not drive. Residents must be home during collection and cannot leave hazardous waste outside.

The at-home collection service accepts oil-based paints, solvents, cleaning products, pesticides, fertilizers, automotive products, photo chemicals, mercury thermometers, and non-empty aerosols. Residents must take unknown or unlabeled toxic and other hazardous substances directly to the household hazardous waste facility. At-home collection also does not accept medicines or sharps.

Single-family and multifamily residents in San Francisco County can also recycle batteries through curbside collection. During curbside solid waste collection days, single-family residents can place household batteries in a clear plastic bag on top of their waste bin for the waste hauler Recology to collect. For multifamily units (six or more units), property managers or residents can request a free orange collection bucket and free pickup. For other materials, San Francisco also coordinates with multifamily property managers to organize collection days at their properties for other materials.

San Francisco conducted a residential awareness campaign on battery disposal options. The awareness campaign included mailers, outreach to multifamily units, and [battery buckets at outreach and community events](#). Curbside and on-property battery collection increased by approximately 300,000 residents but use of the retail-based program decreased during the same period.

Santa Clara County, California

Santa Clara County partners with non-profit organizations to allow them to deliver HHW and pharmaceuticals on behalf of residents who do not have access to vehicles. One participating organization is Heart of the Valley for seniors, which is funded by certain cities in Santa Clara County. Participating non-profit organizations must obtain a utility bill from the resident showing they live in Santa Clara County.

In parts of Santa Clara County, the residential waste hauler picks up specific types of wastes for free at curbside:

- CFL bulbs placed in a clear plastic bag and placed next to recycling cart.
- Used oil filters and used motor oil placed in plastic bags and one-gallon containers with screw top lids next to recycling containers.
- Household batteries placed in a clear bag for pre-scheduled curbside pick-up.

San Mateo County, California

San Mateo County has a free HHW at-home collection program for residents with disabilities, those who are home-bound, and the elderly. The program overall is very popular and widely used, although the County did not provide participation data. The County does not advertise the program widely because many residents who were not eligible and had access to transportation began trying to use the program.

Similar to Santa Clara County, some residential waste haulers in parts of San Mateo County collect limited types of hazardous waste from homes: CFL bulbs, used motor oil and filters, household batteries, cell phones, electronics, and computer monitors. Some waste haulers serving multifamily properties also offer collection buckets for household batteries and cell phones.

Metro Oregon

Throughout Oregon, residents can set used motor oil out for curbside collection with their garbage or recycling. Motor oil must be in suitable containers and set next to the waste container.

Collection Services for Businesses

Alameda County, California

Alameda County developed its [residential landlord hazardous waste program](#) to help residential landlords properly dispose of household hazardous waste left behind by former tenants. This program allows residential landlords to deliver tenant-created waste to the county's collection facilities at no charge. The landlord program accepts most types of household hazardous waste such as adhesives, painting, cleaning, auto, garden, propane, batteries, and fluorescent bulbs. The program may accept other industrial hazardous products after a consultation. The program is not intended for waste generated by the landlord, property manager, or the property's maintenance staff. The program tracks which multifamily properties are participating so that it can focus outreach efforts on properties that show low participation rates.



2021 Hazardous Waste Management Plan
November 2021 Final



APPENDIX F. Priority Community Research Summary

2021 Hazardous Waste Management Plan

Hazardous Waste Management Program in King County

APPROVED AND ADOPTED BY
KING COUNTY BOARD OF HEALTH
NOVEMBER 2021

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1 Research Summary



1.1 Overview

As part of our evidence-based planning approach, the project team devised a research approach that sought to gather data about the characteristics, needs, values, and preferences of the communities most impacted by exposures. This document describes the objectives, strategies, and tactics we employed during our community research. It also provides key findings from our research, including recommendations for how these findings might influence the 2021 Hazardous Waste Management Plan (2021 Plan) update process and content. This section provides a high-level summary of our community research effort. The [Research Details](#) section describes each component in more detail.

This community research reflects our current understanding of the community representatives who participated. We recognize that concerns, experiences, and behaviors change over time. The ideas presented in this summary are reflective of those who participated in the research and do not represent whole or all communities. We commit to ongoing conversation with communities across King County to continue evolving our work.

1.2 Objectives

In keeping with mission and racial equity vision the Hazardous Waste Management Program (Program) as outlined in the project management plan (PMP) for the 2021 Plan, the objectives for our priority community research were to:

- Prioritize and actively seek community voices:
 - The 2021 Plan incorporates community issues and priorities as they relate to hazardous material exposures.
 - Lessons learned from our community will inform Program strategies and services for the next ten years.
- Ensure that recommendations in the 2021 Plan are evidence-based.
- Cultivate long-term relationships with, and learn from, priority communities so that—both during and after the project—the Program:
 - Is seen as part of the communities it serves.
 - Listens to and understands community priorities, needs, and ideas for improving program services.
 - Designs services that are inclusive, accessible, and responsive to community priorities and needs.

1.3 Priority Communities

Within the 2.1 million residents and 60,000 businesses we serve, we know that some populations are at greater risk from hazardous material exposures. We refer to these stakeholders broadly as **priority communities**. Priority communities are traditionally underserved and overburdened communities, including:

- Black/African American people
- Non-Black people of color
- Hispanic and Latinx people
- Indigenous, First Nations, Alaskan Native people
- People with a non-dominant or marginalized ethnicity and cultural background
- Speakers of languages that King
- County identifies as first- and second-tier languages and the descendants of these people
- Refugees or immigrants
- People subjected to poverty or low incomes
- People who are more vulnerable when exposed to harmful chemicals due to age, pregnancy, health factors, or other underlying conditions
- Businesses whose owners or employees are predominantly in the groups described above

Terminology

We recognize that grouping people and communities together ignores the wide range of lived experiences, individual identification preferences, and the different cultures of different identities. We also recognize the importance of not solely defining these groups as underserved, overburdened, and vulnerable.

In our research and throughout this document we have taken the following approach when referring to different communities:

- When citing existing research sources, use the term the source uses to accurately represent the data as we received it.
- When writing new content, use terms that our team agrees will best reflect our current understanding of the preferences of the community being discussed. In doing so, we acknowledge that in the future the terms we use may no longer be the preferred terms or may even become offensive. We will always attempt to use preferred terms at the moment we are writing.

1.4 Adapting During Turbulent Times

As we were finalizing and preparing to implement our research plan in the spring and summer of 2020, two major events occurred to change the landscape in which we were operating. This section outlines how we navigated this environment and adapted our approach to pursue our stakeholder goals within the given constraints.

COVID-19 Pandemic

As the pandemic hit the United States and King County in particular, County employees and the consultant team transitioned to remote working. A series of government mandates limited in-person interactions and required social distancing measures for any interactions that did occur. This limited our ability to convene all types of Program and project stakeholders in service of research or engagement.

The ongoing pandemic has had disproportionate impacts on priority communities, diverse businesses, and community-based organizations (CBOs) that serve them. CBOs, essential partners in our priority community research plan, have been operating in crisis mode to care for their communities during this time.

Civil and Racial Unrest

Incidents of police brutality against Black Americans, followed by nationwide protests and violence, further traumatized Black and Brown communities and heightened distrust of government.

While our original research plan centered on CBO-led community engagement, we recognized that these circumstances were putting significant pressure on CBOs and wanted to avoid adding to this by asking them to support our research needs. However, we also recognized that this work would provide valuable revenue for these organizations.

Guiding Principles

During this period of reflection and discussion, the stakeholder team was guided by the below principles:

- Respect where people are.
- Work toward our racial equity vision without expecting to fully achieve it within the scope of this one project.
- Don't assume that community-based organizations are—or are not—interested in participating.
- Respect, invite, and compensate those with community expertise.

How We Adapted

After reflection and discussion, we adapted our approach to first conduct internal focus groups with Program employees. The purpose of these focus groups was to gather existing institutional knowledge before deciding whether research outside the organization was necessary and appropriate during this turbulent time. The expertise provided by staff during these focus groups proved to be a valuable resource for the 2021 Plan project that we recommend the Program continue to use—and recognize—in future initiatives.

After completing the focus groups and synthesizing our findings, we reached out to three CBOs already under contract with the Seattle Public Utilities Community Connections Program to ask if they were still interested in supporting the project's community research goals given their competing priorities. They were unanimously eager to go forward.

Additional Reflections

During the planning phase of the project, the Program's ambitious racial equity vision set the planning team on a course to develop a robust and iterative approach for technical research and community engagement. To be responsive to the rate adjustment schedule (scheduled for late 2021) and the realities of involving priority communities during COVID-19, the team adapted and revised our approach to conduct technical and community research in parallel rather than iteratively.

While we recognize that no single project should bear the full burden of realizing racial equity visions, future projects may need to adjust expectations about the time and budget required to do authentic community engagement if we want to truly move the needle toward our vision.

Finally, we realize there is much more work for the Program to do in the coming years to build and maintain a fuller understanding of our priority communities. We wish we could have done more within the scope of the 2021 Plan project. Despite adaptations to an aggressive project timeline with a less integrated research approach and further adaptations to turbulent times, the body of knowledge in this summary will serve as a robust resource.

1.5 Our Approach

The 2021 Plan's priority community research included three distinct efforts: literature review, focus groups with Program staff, and focus groups with three community-based organizations (CBOs).

Literature Review

We reviewed 50 sources of written information and data about priority communities from both internal and external sources. The purpose of the literature review was to mine existing research for relevant information that would benefit the 2021 Plan update process. In our review, we sought information about the awareness, knowledge, attitudes, concerns, priorities, exposures, and vulnerabilities for Black, Indigenous and people of color (BIPOC) communities related to hazardous materials.

Internal Staff Focus Groups

In June 2020, we conducted three focus groups with a total of 12 Program staff, all via video conference due to the constraints on in-person meetings during the pandemic. Participants ranged in areas of expertise and years of experience, from one year to over 20 years.

The objectives of these focus groups were to:

- Gather institutional knowledge about priority communities and diverse businesses from current and recent Program engagements.
- Gather advice on effective and appropriate engagement strategies in the context of the pandemic, including leveraging existing CBO and community relationships, for research about awareness, knowledge, priorities, and practices of priority communities and diverse businesses.

- Provide participants with information about the 2021 Plan, garnering buy-in and support for our community research approach while centering and acknowledging Program work to date.
- Use insights gained to shape further research and inform major themes for community partnering recommendations in the final 2021 Plan.

CBO Focus Groups and Community Engagement

In September 2020, we partnered with three CBOs under contract with the Seattle Public Utilities Community Connections Program to conduct focus groups with their staff and community members. These CBOs are described below.

Community Based Organizations

CHINESE INFORMATION SERVICE CENTER (CISC)

CISC helps immigrants throughout King County achieve success in their new community by providing information, referral, advocacy, social, and support services. The organization supports immigrants from Eastern Europe, Latin America, Africa, and other parts of Asia. Services include early childhood education, youth development, family support, cultural navigation, senior and disabled adult services, and health care access programs. CISC provides these services at four office locations in Seattle, Bellevue, Kent, Redmond, and numerous outreach sites such as community and senior centers.

ENVIRONMENTAL COALITION OF SOUTH SEATTLE (ECOSS)

ECOSS educates and empowers businesses and diverse communities to implement environmentally sustainable practices. International staff speak more than a dozen languages and work with Asian, Southeast Asian, Pacific Islander, African and Latino communities. Program areas are environmental equity, resource conservation, and stormwater solutions. The New Arrivals Program bridges knowledge and cultural gaps that refugees and immigrants face, helping build environmental literacy and leadership through environmental education and experiences.

HORN OF AFRICA SERVICES (HOAS)

Horn of Africa Services is a nonprofit that serves the East African immigrant and refugee community in Seattle. This community includes individuals and families from Djibouti, Eritrea, Ethiopia, Sudan, Somalia, and neighboring countries that are living in the Greater Seattle area. Services include social services, educational assistance, youth programs, and economic empowerment to address the needs of

the community. Core programs at Horn of Africa Services include case management for individuals and families, youth programming for high school students, and after-school tutoring for East African students.

Focus Groups

In partnership with the above CBOs, we conducted ten focus groups with 49 participants from nine language groups. Focus groups were mostly comprised of CBO staff members, although one CBO included a mixture of staff members and community members. All CBO staff and community participants were compensated for their time.

The objectives of the focus groups were to:

- Gain insights into community awareness, attitudes, knowledge, and behaviors related to hazardous materials and the Program.
- Gain insights and advice to shape further research and inform recommendations in the 2021 Plan.

Community Engagement

In addition to the focus groups, two of the three CBOs (CISC and HOAS) conducted additional outreach and engagement with 79 community members via 6 community meetings and 37 one-on-one interviews.

A member of the consultant team moderated the focus groups in English. The CBOs moderated additional community outreach and engagement in language. The language groups included in the CBO focus groups and community outreach and engagement activities were:

- Afaan Oromo
- Amharic
- Chinese (Cantonese and Mandarin)
- Russian
- Somali
- Spanish
- Tigrigna
- Vietnamese

1.6 Key Findings

Six community values and concerns that stood out in our research (Figure 1-1).

Figure 1-1 Community values and concerns



- **Family Health:** Communities are concerned about the health risks of chemicals in the home, especially for children and the elderly.
- **Affordability:** Communities care about the affordability of safer products.
- **Convenience and Accessibility:** Communities prioritize convenience and accessibility of information, safer alternatives, storage, and collection services.
- **In-Language and In-Culture Interactions:** Communities value communication, education, and services that are in-language and in-culture.
- **Regulations:** Communities assume that government regulations are in place to keep them safe.
- **Environmental Health:** Communities care about the health of the climate, animals, and their habitats.

1.7 Conclusions and Impacts

Our research largely confirmed the findings from prior community research and recent Program engagements that are already shaping Program activities. Table 1-1 lists some potential impacts of our findings on the Program's work to include in the 2021 Plan.

Table 1-1 Key findings and possible impacts on the Program's work

Finding	Possible Impacts on the Program's Work
Awareness of hazardous waste and the Hazardous Waste Program is low.	Working to educate priority communities on hazardous materials and Program residential and businesses services and campaigns.
Awareness and use of collection services is low.	Re-evaluating collection services to make them equitable, accessible, convenient, and easy for priority communities to use.
Consumers assume the government is regulating hazardous products.	Increasing policy efforts that encourage manufacturers and distributors of hazardous materials to implement positive changes.
Participants indicated broad use of vinegar and baking soda. However, other safer alternative cleaners are perceived to be inaccessible and ineffective.	Continuing to spread the message about the benefits of using safer cleaning alternatives, especially as it relates to protecting family and environmental health. Highlighting that safer alternatives do not have to be expensive.
Cultural background, norms, and lifestyle choices have a large impact on level of interaction with hazardous materials, including what and how products are used.	Continuing to learn more about what priority communities are present, and are expected to grow, in King County and how their cultural backgrounds may or may not influence their knowledge of or interaction with hazardous materials.
Word-of-mouth and community-based organization (CBO) outreach is a powerful outreach tool.	Leaning further into these strategies when reaching out to priority communities by working in collaboration with trusted messengers.
Language is a significant barrier.	Advocating for and using universally understood symbols and/or transcreated, customized materials.
Family and children's health is a key concern and driver.	Highlighting health impacts when communicating with priority communities. Using education avenues through children.
Environmental protection is a key concern.	Highlighting environmental impacts when engaging with priority communities.

Finding	Possible Impacts on the Program's Work
Safety in work settings is a key concern.	Offering training services to workers and employers in common jobs that have extended exposure to hazardous materials.
Multifamily residents lack adequate information about how to handle waste.	Developing a multifamily outreach strategy and incorporating it into the Program's work.
Many data sources aggregate community groups into catch-all terms such as people of color (POC); Black, Indigenous, and people of color (BIPOC); Hispanic; and Asian.	Wherever possible, identifying specific communities—preferably using terms preferred by the community itself—rather than using general terms.
Effective community engagement through and with CBOs requires a thoughtful, multi-dimensional approach.	Developing a comprehensive strategy that: includes alternative ways to engage and give back, avoids over-reliance on just a few CBOs, keeps up with emerging communities and CBOs, leverages other government and agency partners, and empowers employees of color to lead and reach out to priority communities.

2 Research Details



2.1 Literature Review

This literature review summarizes research found for hazardous waste awareness, exposures and vulnerabilities, knowledge, attitudes, community concerns and priorities for Black, Indigenous, and people of color (BIPOC) communities. When citing existing research sources, we used the term the source used to accurately represent the data as it was provided to us.

Overview

Summary of Sources Reviewed

- We reviewed 50 sources, 19 of which are cited in this summary.
- The sources that were most relevant to our research objectives were focus group studies conducted by the City of Seattle and King County agencies with community-based organizations (CBOs) and/or community members. Additionally, annual reports from CBOs and consultant and council reports addressing health disparities were also very insightful.
- Many sources were written by non-BIPOC authors and majority-white agencies and governments.
- Most sources aggregated community groups into catch-all terms such as people of color (POC), BIPOC, Hispanic, and Asian. The impact of aggregated terms in data sources negates not only the complexities and vast differences of the people and communities who make up these groups but also our ability to identify community-specific data with source findings.

High Level Findings

GENERAL AWARENESS

- There are strong consensus and general awareness that hazardous materials are bad for both health and the environment. However, there is a lack of awareness and knowledge about what products are harmful, how prevalent these products are, how they are harmful, and how much exposure is harmful.
- Awareness of safer cleaning practices and products are common in some communities.
- Depending on occupation type, some are aware of hazardous materials through education received at work.

- Some industries are more aware due to the nature of their work and frequent use of hazardous materials (for example, the auto industry and construction).
- Even when individuals are aware and concerned about hazardous exposure on the job, they rarely have control over what products are selected for use at work.

EXPOSURE VULNERABILITIES

- Low-income and/or priority communities face disproportionate impacts on health and health risks due to compounding factors of geography, other socioeconomic factors such as access to and affordability of health care, environmental pollution and exposures, education, and English proficiency.

KNOWLEDGE OF COLLECTION AND DISPOSAL

- Confusion persists regarding the difference between transfer stations and collection sites.
- Demographics of those using the collection sites are not reflective of the growing BIPOC population in King County.
- There is concern for proper disposal, but lack of knowledge on how to properly dispose.

COMMUNITY VALUES, PRIORITIES, CONCERNS, AND MOTIVATORS

- Equitable access to various transportation options, affordable housing, safety and health of family and self, equitable access to health care, affordability of health care, healthy environment, access to clean air, healthy and affordable food, and investments to root communities in place were top values and priorities.
- Top concerns were for safety and health of children, self, and environment.

BARRIERS AND OPPORTUNITIES

- Barriers include:
 - Access to information: language barriers, digital literacy barriers, literacy levels
 - Prioritization of concerns: hazardous material exposure and disposal are not top of mind when compared to making rent or feeding your family
 - Health: mental and physical health
 - Trust in government
 - Affordable housing, rising cost of living
 - Citizenship required to access basic services
- Education and outreach campaigns that are transcreated through community ambassadors are received well amongst many communities.

Exposure Awareness and Vulnerabilities

The following section contains source information regarding BIPOC and specific community studies conducted by the Hazardous Waste Management Program (Program) regarding awareness of hazardous material exposure through products used at home, at work, and other potential exposure avenues compounded by vulnerability factors.

Awareness of Hazardous Materials and Exposure Risks at Home

GENERAL

- There are a general perceptions and beliefs across all groups that small amounts of hazardous products and exposure do not matter (Local Hazardous Waste Management Program in King County, 2013).
- There is some innate awareness that certain products can be dangerous, but there is much misunderstanding/confusion about specifics and how much impact a single action can have (Local Hazardous Waste Management Program in King County, 2016).
- Across 135 people surveyed (45 Spanish-speaking, 15 Korean participants, 15 Filipino participants, 17 Vietnamese participants, 43 Black), participants were unclear about what materials are hazardous (Emerging Design Consulting, 2012).

- There is confusion over how to tell if something is hazardous (Local Hazardous Waste Management Program in King County, 2016).
- Some materials that are hazardous do not appear dangerous because their packaging is so nice, and products labeled as organic might still be bad for you [SOAR] (Hazardous Waste Management Program in King County, 2018).

PRODUCTS

- Across 135 people surveyed, there was a high value on cleaning products they perceive as environmentally less harmful, though other factors such as price also influence their purchasing choices (Emerging Design Consulting, 2012).
- Natural remedies for insecticides are a familiar tradition for several immigrant groups in this study, and many were familiar with use of baking soda and vinegar for cleaning (Emerging Design Consulting, 2012).
- In a survey of 255 Spanish speakers, most participants recognized that some cleaning products are harmful while fewer reported taking actions that would protect themselves and their families (SOAR, 2015).
 - 78% of participants agree that some cleaning products are harmful to my family's health.
 - 74% of participants agree that some cleaning products are less toxic than other cleaning products.
 - 54% of participants agree that I buy cleaning products based on how safe they are.
 - 50% of participants agree that I buy cleaning products based on what my friends and family buy.
 - 42% of participants agree that my family is at risk for being harmed by some cleaning products.
 - 42% of participants agree that I know how to choose safer cleaning products.
 - 26% of participants agree that I read the label on cleaning products.
 - 22% of participants agree that I buy cleaning products based on the label.

COMMUNITY-SPECIFIC DATA

Chinese Community

- CISC clients lack access to information, face language barriers, have low literacy levels (English and Chinese), and have limited time because they are focused on earning a living (Hazardous Waste Management Program in King County, 2018).

- CISC clients use personal products, household products, and toys from Asia, some of which have high lead content (Hazardous Waste Management Program in King County, 2018).
- Many live in very old houses with lead, mold, and bed bug issues (Hazardous Waste Management Program in King County, 2018).

Filipino Community

- Many Filipino community members use cleaning products, insecticides, and weed control products (Local Hazardous Waste Management Program in King County, 2016)
- When choosing cleaning products, they look for effectiveness, price, smell, convenience, and safety (Local Hazardous Waste Management Program in King County, 2016).

Hispanic and Latinx Communities

KNOWLEDGE AND SOCIAL NORMS

- Many Hispanic and Latinx community members lack specific knowledge about product safety and hazardous materials. Due to language barriers, most do not understand the terms used to categorize products, such as insecticides, disinfectants, solvents, and hazardous materials (Emerging Design Consulting, 2012).
- Overall, the majority of native Spanish-speaking residents living in south King County were unaware that many of the products they use are unsafe for their health and the health of their families (Local Hazardous Waste Management Program, 2018).
- Where and how products are stored differ by household. Most all store products under the kitchen sink and some store in a garage or outside the house (Emerging Design Consulting, 2012).
- Majority of participants expressed that clean means a strong smell (Emerging Design Consulting, 2012)
- The primary sources of education around cleaning were mother or older sibling (Alma Villegas Consulting, 2016).
- Mixing products is still a very common practice. However, there is good knowledge of the dangers of mixing bleach with other cleaning products (Esparza+, 2013).

PRODUCTS AND PRODUCT USE

- Most commonly used products were bleach, Ariel and Roma soaps, Pine-Sol®, and Fabuloso® (Alma Villegas Consulting, 2016).
- There is common use of products that are traditionally used in Latin America, such as commercial soap powders (Alma Villegas Consulting, 2016).

- Some use strong cleaners, such as bleach, ammonia, lime-away, and other products to clean and disinfect (Emerging Design Consulting, 2012).
- Others expressed use of baking soda, lemon, and/or vinegar in cleaning. Fewer expressed use of organic products (Emerging Design Consulting, 2012).
- It is common practice to mix different products together (Emerging Design Consulting, 2012).
- In general, participants do not read the labels either for warning symbols or for usage instructions (Esparza+, 2013).
- Purchase of products greatly occurs out of habit, either the product that they have been using for a while or the products that they used in their home countries (Esparza+, 2013).
- The perfume that the cleaning products leave after their use is very important (Esparza+, 2013).
 - It is a symbol that they did their jobs.
 - It eliminates bad smells.
 - For this same reason, there is wide use of Fabric Softeners.
- When asked about the perceived benefits of using products that are labeled “Eco-friendly,” “Environmentally-friendly,” or “Natural,” only 22.5% of the 102 intercept interview participants attributed a health benefit to using environmental alternatives. The majority attributed the benefit directly to the environment (TDW+Co, Radiant Consulting, 2018).
- The top three things most important when purchasing cleaning products in the store ranked 1st, 2nd, and 3rd based on importance are (TDW+Co, Radiant Consulting, 2018):
 - Can use it to clean almost everything in my home
 - Effectiveness
 - I think it is safer
- Effectiveness was identified as the most desirable quality for cleaning products used in the home (TDW+Co, Radiant Consulting, 2018).

Korean Community

- The Korean community commonly uses U.S. brand cleaning products (Local Hazardous Waste Management Program in King County, 2016).
- Some use baking soda/vinegar (Local Hazardous Waste Management Program in King County, 2016).
- When choosing cleaning products, the Korean community looks for quality and eco-friendliness (Local Hazardous Waste Management Program in King County, 2016).
- The Korean community uses pesticides and oil-based paint (Local Hazardous Waste Management Program in King County, 2016).

Vietnamese Community

- The Vietnamese community commonly uses U.S. brand products (Local Hazardous Waste Management Program in King County, 2016)
- When choosing cleaning products, the Vietnamese community looks for effectiveness (Local Hazardous Waste Management Program in King County, 2016).
- The Vietnamese community does not use a lot of hazardous products, particularly around places where food is grown. There is a focus on natural management for bugs, pests, and weeds. Their use of oil-based paints and solvents is limited (Local Hazardous Waste Management Program in King County, 2016).

Communities with No Community-Specific Information Found

- Black or African American, American Indian or Alaska Native, Native Hawaiian and other Pacific Islander, Two or more races, Middle Eastern and North African (MENA) communities.

Awareness of Workplace Exposure Risks

GENERAL

- Women and people of color make up 65% of the labor force in the region (Puget Sound Regional Council, 2019).
- Approximately 20% of the businesses in the region are companies owned by people of color, above the national average of 17.6% (Puget Sound Regional Council, 2019).
- Auto, beauty, construction, health, and other manufacturing industry sectors represent businesses with a disproportionate number of minority owners and disproportionate use of potentially hazardous chemicals (EnviroIssues, 2019).
- Across all industries, compliance and impacts to worker safety/health and water quality were the top three concerns (EnviroIssues, 2019).

ATTITUDES

- Businesses expressed mixed opinions on the importance of the impacts associated with unsafe products and chemicals. This split can be inferred from a lack of awareness and information regarding a products' usage and its potential impacts (EnviroIssues, 2019).
- Attitudes about the impacts of hazardous products and chemicals appear to differ when reviewing the responses from businesses of different racial and

ethnic backgrounds. Overall, minority business owners and specifically exclusively non-white business owners showed slightly less concern for impacts (compliance, water quality, employee health and safety, customers, drinking water quality, air quality). Lack of concern from minority business owners could be considered as an indicator for a lack of information regarding impacts, awareness, and access to educational materials (EnviroIssues, 2019).

PRODUCTS

- Survey data showed high correlation between usage of safe products and alternatives and prior familiarity with the safe options commonly used in their industry (EnviroIssues, 2019).
- Auto and Construction businesses expressed slightly higher awareness of the impacts of the products in their businesses. The amplified awareness could be explained by tighter regulations in these two industries, the number and types of unsafe products used regularly, or access to industry communications that promote awareness of hazardous waste in general (EnviroIssues, 2019).
- Respondents claim they are familiar with safer alternatives and products but show they are largely unconcerned with the impacts of their current products that produce hazardous waste. This finding highlights the disconnect between importance and the impacts of common products used across industries (EnviroIssues, 2019).

INFORMATION SPECIFIC TO HAZARDOUS WASTE MANAGEMENT BUSINESS SERVICES PROGRAM

- Through survey responses, Auto and Health businesses indicated higher awareness of Business Services Program (BSP) services. This also highlights opportunity for increased engagement for the other sectors, such as Beauty, Construction, and Miscellaneous (EnviroIssues, 2019).
- Most businesses profess high familiarity with safer alternatives. Businesses will not want to be “talked down to” in communications from BSP about the importance of the topic (EnviroIssues, 2019).
- When attitudes are in-line with Program goals, the businesses primarily need assistance in changing their practices and behaviors, not persuasion that the goal of safer products is important (EnviroIssues, 2019).

- Interviews with businesses (business spoke Spanish (16), Vietnamese (17), Korean (19), Cantonese (10), Mandarin (9), and English (5)) highlighted that (ECOSS, Alma Villegas Consulting, 2018):
 - Most business respondents use products and chemicals as a part of their operations. Sometimes, these products can potentially be harmful to people or the environment, and the respondents could name these.
 - Specific products frequently named were auto-related, oil, and hair products.
 - Less than half said their businesses believe there are safer alternatives for the products used at their businesses.
 - Almost all said that if they knew there were safer products, they would use them.
 - Main motivators for using safer products were:
 - Protection of employees from exposure to harmful products (or chemicals)
 - Protection of our environment
 - Customer reactions to using safer products (or chemicals)
 - Financial incentives (like vouchers to reimburse you for purchases)
 - Main challenges for using safer products were:
 - Price (staffing, maintenance, replacing equipment)
 - Access/knowing where to buy them
 - Time

COMMUNITY-SPECIFIC DATA

Hispanic and Latinx Communities

- Many Latinos work with industrial cleaners, solvents, or chemicals on the job and use these products at home (Emerging Design Consulting, 2012).
- Occupations represented in the focus group included hotels, construction, and landscaping industries (Emerging Design Consulting, 2012).
 - “We work in hotels and they do not educate us on how to use these cleaners. Many times, they burn our skin because these products are very concentrated.” Three other participants agreed with this statement.
 - “I worry because my husband works in construction and we don’t know exactly what type of chemicals he is being exposed to at work. I worry that (the chemicals) stay in his clothes, inside the house, in the car that he drives; - the same car we use as a family” Five other participants agreed with this statement.
- Many focus group participants work in the construction and hotel cleaning industries and described a lack of knowledge about how to use concentrated cleaning products at work, which some use at home (Emerging Design Consulting, 2012).

- Participants expressed use of a product but were unable to identify by product category. For example, participants confirmed they used a product but were unable to indicate if it was an insecticide or not (Emerging Design Consulting, 2012).
- Over half of the focus group participants were house cleaners. Of the house cleaners in the focus group who use green products, most either request that their clients purchase green products or their clients request that they use them. (Esparza+, 2013).

Communities with No Community-Specific Information Found

- Black or African American, American Indian or Alaska Native, Asian, Native Hawaiian and other Pacific Islander, Two or more races, Middle Eastern and North African (MENA) communities.

Vulnerabilities

GEOGRAPHY

- Communities of Color are concentrated in the more urban areas of the region, particularly along I-5 and I-405 corridors, with an especially strong presence in south Seattle, south King County, and central/south Tacoma (Puget Sound Regional Council, 2019).
- Each minority group is seen to have a uniquely different residential pattern of settlement across the region. Concentrations of poverty can be seen throughout the region's urban core, central and south Seattle, University District, and south King County (Puget Sound Regional Council, 2018).
- A cumulative health impact analysis (environmental exposures, environmental effects, public health effects, socioeconomic factors) provides a firm basis for characterizing the Duwamish Valley as an area with disproportionate health impacts and environmental injustices (Gould & Cummings, 2013).
- Duwamish Valley residents are more likely to live in poverty, be foreign born, have no health insurance or leisure time, and are more likely to be sick (Gould & Cummings, 2013).
- Duwamish Valley riverfront neighborhoods are home to residents who are most impacted by the Superfund Site, with potential exposures from contact with contaminated sediments on neighborhood beaches, swimming or wading in the river, and fishing (Gould & Cummings, 2013).
- Low-income and/or minority populations are disproportionately exposed to pollution and increased health risks because of their proximity to pollution, such as lead in industrial facilities, highways, low-income housing and pesticides in agricultural areas (Gould & Cummings, 2013).

- People of color and transgender respondents were more likely to say their neighborhoods are unhealthy places to live (Seattle Office for Civil Rights, 2016).
- Thirty-four percent (34.4%) of those surveyed (1,695 respondents) responded that they or someone in their family have moved out of Seattle in the past two years due to the rising cost of housing. American Indian/Alaska Native, Black/African American, Multiracial, and Latino respondents were most likely to say so than other groups (Seattle Office for Civil Rights, 2016).
- Every racial group rated the number one reason they personally had moved out of Seattle to be the need to find lower rent or a less expensive house to maintain. At the same time, people of color cited other economic reasons (such as foreclosure or eviction) more often than White respondents (Seattle Office for Civil Rights, 2016).

Community-Specific Data

AMERICAN INDIAN AND ALASKAN NATIVE COMMUNITIES

- American Indian/Alaskan Native population, less than 1% of the region's total population, can live on or near various Tribal lands (Puget Sound Regional Council, 2018).
- Close to half of all American Indian/Alaska Native respondents do not feel they have benefited from Seattle's environmental progress (Seattle Office for Civil Rights, 2016).

ASIAN COMMUNITIES

- National data suggest that the aggregate category of "Asians" masks disparities within the Asian category. Evidence supports disparities in health outcomes particularly for Southeast Asians compared to other Asian ethnicities (Hazardous Waste Management Program in King County, 2018).
- The Asian/Pacific Islander population, 13.3 % of the region's total population, is widely dispersed around Puget Sound. Asian/Pacific Islander communities have a strong presence in east and south King County, southwest Snohomish County, and south and southwest Seattle (Puget Sound Regional Council, 2018).

BLACK OR AFRICAN AMERICAN COMMUNITIES

- The Black population, 5.4% of the region's total population, has a strong presence in south Seattle, Renton/Tukwila area, and parts of Tacoma (Puget Sound Regional Council, 2018).
- Environmental health has improved for African American communities. African-born communities (clusters of Somali and Ethiopian communities face more environmental hazards or risks compared to American-born communities [AARTH] (Hazardous Waste Management Program in King County, 2018).
- Significant data shows that the Somali community in south King County, Kent, and Tukwila have poorer health and higher disparities [Somali Health Board] (Hazardous Waste Management Program in King County, 2018).

HISPANIC AND LATINX COMMUNITIES

- Hispanic/Latino population, 9.7% of the region's total population, have a strong presence in south Everett, south King County, and Tacoma (Puget Sound Regional Council, 2018).
- Culture can be a barrier to experiencing/learning something new. Having individuals who are informed is key to breaking the chain [Facilitadores] (Hazardous Waste Management Program in King County, 2018).
- Many within the Hispanic/Latino population are low-income housing residents [El Centro de la Raza] (Hazardous Waste Management Program in King County, 2018).
- Rapid increase of housing costs means Latinos are being pushed out from the urban core to more contaminated areas [CIRCC] (Hazardous Waste Management Program in King County, 2018).

COMMUNITIES WITH NO COMMUNITY-SPECIFIC INFORMATION FOUND

- Hawaiian and other Pacific Islander, Two or more races, Middle Eastern and North African (MENA) communities.

HEALTH

- Racial and ethnic disparities in health and social outcomes persist through King County, and people of color are more likely to be uninsured and have poor health outcomes (King County Hospitals for a Healthier Community, 2018/2019).
- American Indian/Alaska Native, Black, Hispanic, and Native Hawaiian/Pacific Islander mothers were less likely than Asians and Whites to get early and adequate prenatal care (King County Hospitals for a Healthier Community, 2018/2019).

- Black and American Indian/Alaska Native infants experienced the highest rates of low birth weight and infant mortality (King County Hospitals for a Healthier Community, 2018/2019).
- South region adults were more likely to have diabetes than adults in all other regions, a disparity that has not changed since 2013 (King County Hospitals for a Healthier Community, 2018/2019).
- “Health varies within each community due to income, education, place of residence, English proficiency, children in school system, how recently an individual immigrated (more recently, worse off)” [ECOSS] (Hazardous Waste Management Program in King County, 2018).
- “Quality of life and health depends on quality of employment, immigration status, and education level. There is always room for improvement” [Facilitadores] (Hazardous Waste Management Program in King County, 2018).
- “Day to day struggles due to language and cultural barriers, clients we serve have similar issues to other communities of color. Overall, most impacted by economy—jobs are determined by skill level” [CISC] (Hazardous Waste Management Program in King County, 2018).
- “Poor health, there is garbage all over here. Same cancer rates as the Duwamish in Beacon Hill” [CHAC] (Hazardous Waste Management Program in King County, 2018).
- “A negative change in quality of life, there are more allergies, more viral infections like pink eye, strep, flu” [El Centro de la Raza] (Hazardous Waste Management Program in King County, 2018).
- Survey results from a SOAR Promotora pilot evaluation conducted with 255 individuals found that (SOAR, 2015):
 - 62% of participants agree that lead is harmful to my family’s health.
 - 43% of participants agree that my family is at risk for lead poisoning.
 - 67% of participants agree that I can protect my family from lead poisoning.
 - 26% of participants agree that my house was built before 1978.
 - 19% of participants agree that the paint is chipping or peeling on my house.

Community-Specific Data

BLACK OR AFRICAN AMERICAN COMMUNITIES

- Black residents were more likely to report having unmet medical needs due to cost than Whites (King County Hospitals for a Healthier Community, 2018/2019).
- “Members of the Black communities want to seek medical care when they are sick but access to medical care and medicine is not good” [Eritrean Association] (Hazardous Waste Management Program in King County, 2018).

- “People who don't have trouble with their immigration status do not have as many problems” [Eritrean Association] (Hazardous Waste Management Program in King County, 2018).
- “It is important to have conversations about the right messages to reach the East African community and communities outside the urban area about health” [SOAR] (Hazardous Waste Management Program in King County, 2018).

CAMBODIAN AND VIETNAMESE COMMUNITIES

- “Elders have poor health and lack education on medical assistance” [ECOSS]. (Hazardous Waste Management Program in King County, 2018)
- “Middle-aged men lack education, awareness, and a desire to seek assistance unless there is big issue; prior to ACA, most manual laborers or self-employed people did not have access to health insurance” [ECOSS] (Hazardous Waste Management Program in King County, 2018).

HISPANIC AND LATINX COMMUNITIES

- In 2016, Hispanic adults were least likely of all racial/ethnic groups to have healthcare coverage, with an uninsured rate nearly 3 times the county average (King County Hospitals for a Healthier Community, 2018/2019).
- Hispanic residents were more likely to report having unmet medical needs due to cost than Whites (King County Hospitals for a Healthier Community, 2018/2019).
- “The Hispanic and Latinx communities experienced a lack of education about health, and more community members were pre-diabetic and at an early age and had bad psychiatric indexes” [SeaMar] (Hazardous Waste Management Program in King County, 2018).
- “Many Hispanic residents lack access to medical care” [El Centro de la Raza] (Hazardous Waste Management Program in King County, 2018).
- The participants said that they believe that the strong smell of bleach makes them wheeze and affects their lungs and their health in general (Esparza+, 2013).

COMMUNITIES WITH NO COMMUNITY-SPECIFIC INFORMATION FOUND

- Other Asian communities, Native Hawaiian and other Pacific Islander, Two or more races, Middle Eastern and North African (MENA) communities.

Knowledge of Collection and Disposal

Collection

- Minority communities expressed confusion over the difference between a solid waste transfer station and a hazardous waste collection site (Local Hazardous Waste Management Program in King County, 2013).
- There is widespread confusion over the difference between household hazardous waste (HHW) collection, recycling events, and transfer stations. This is true across all groups. However, there is some general awareness that these types of services exist (Local Hazardous Waste Management Program in King County, 2016).
- Despite the increase in diversity in King County, the demographics of customers using the LHWMP collection sites are essentially unchanged from 1999. In 1999, customers were 90% white, upper income, and from single family homes. In 2012, customers were 89% non-Hispanic white and mid to upper income, and 93% lived in single-family homes (Local Hazardous Waste Management Program in King County, 2013).
- People use services based on convenience. When people used disposal facilities of any type, they used from the ones that were convenient: close-by and in familiar locations (Emerging Design Consulting, 2012).

COMMUNITY-SPECIFIC DATA

Hispanic and Latinx Communities

- Those who identified they had used a hazardous waste collection site learned about the facility from their jobs or via word of mouth (Emerging Design Consulting, 2012).
- Most have used a waste disposal facility; however, participants were unable to confirm if it was a solid waste facility or a LHWMP site (Emerging Design Consulting, 2012).

Communities with No Community-Specific Information Found

- Black or African American, American Indian or Alaska Native, Asian, Native Hawaiian and other Pacific Islander, Two or more races, Middle Eastern and North African (MENA) communities.

Disposal

- Many participants had a high level of concern but lacked information related to disposal (Emerging Design Consulting, 2012).
- Groups surveyed (Spanish-speaking, Korean, Filipino, Vietnamese, Black) expressed little knowledge/concern to where products end up when they are disposed of, as evidenced by the common practice of putting leftover potentially hazardous products in the garbage (Emerging Design Consulting, 2012).
- Communities surveyed (Spanish-speaking, Korean, Filipino, Vietnamese, Black) had a strong consensus that proper disposal of hazardous waste is very important. Coupled with the requests for more information on LHWMP collection sites, there is potential of increased awareness within these communities (Emerging Design Consulting, 2012).

COMMUNITY-SPECIFIC DATA

Hispanic and Latinx Communities

- A majority of participants reported that for disposal, they throw the liquids down the drain or in the toilet, or they throw bottles in the trash (Alma Villegas Consulting, 2016).
- There was some knowledge of the “special places” where to dispose of toxic products for free. However, when probed more deeply it seemed like these facilities are seldomly used, as the respondents prefer to use every last drop of the products (even if it is very toxic) than to dispose of them (Esparza+, 2013).

Communities with No Community-Specific Information Found

- Black or African American, American Indian or Alaska Native, Asian, Native Hawaiian and other Pacific Islander, Two or more races, Middle Eastern and North African (MENA)

Community Values, Priorities, Concerns, and Motivators

Values and Priorities

- Lack of affordable housing in core urban areas leads to higher transportation costs, as people move to more dispersed locations in search of affordable housing (Puget Sound Regional Council, 2019).
- Puget Sound Regional Council (PSRC) Regional Transportation Plan identified three key opportunities for increasing access to opportunity: equitable access to transportation includes having choices between various transportation options, ensuring costs are affordable, and ensuring that travel times to destinations are reasonable for all people (Puget Sound Regional Council, 2019).
- Community-identified priorities include:
 - Difficulties in accessing health and human services for people of color, undocumented immigrants, and members of Tribal communities (King County Hospitals for a Healthier Community, 2018/2019).
 - Worse environmental conditions for people of color and residents of lower-income neighborhoods, which were described as requiring longer commutes and having less access to healthy foods, fewer trees, more traffic, and more harmful environmental exposures (King County Hospitals for a Healthier Community, 2018/2019).
 - Lack of transportation services in rural areas, especially for people with disabilities (King County Hospitals for a Healthier Community, 2018/2019).
- Community priorities for a renewable and equitable future were (Puget Sound Sage, 2019):
 - Grant basic human rights of having access to clean air, healthy and affordable food, and affordable housing.
 - Expand public transit, reduce fares, electrify infrastructure.
 - Pair investments with policy to root communities in place.
- Seattle respondents feel strongly that government should prioritize ending the racial equity gaps that impact our communities. Nearly all respondents (96%) said government should prioritize addressing racial inequities (Seattle Office for Civil Rights, 2016).

COMMUNITY-SPECIFIC DATA

Hispanic and Latinx Communities

- Spanish-speaking participants rated high environmental concerns and requested more information on what the impacts might be (Emerging Design Consulting, 2012).
- Latinx communities value products that are safe for the family and the environment, but most often make purchases based on product price or common cultural practices (Emerging Design Consulting, 2012).
- In general, Latinx communities place great importance in a clean house, which often means using bleach and other products (Local Hazardous Waste Management Program in King County, 2016).
- The high value placed on the cleanliness of the home was very clear when speaking with the majority of the intercept interview and community café participants. This belief crossed the political boundaries of all the Hispanic/Latino countries represented in this study and was only surpassed by the desire to protect the health of family members from harm (TDW+Co, Radiant Consulting, 2018).

Filipino Community

- The Filipino participants reported having strong cultural values around cleanliness, killing bugs and bacteria, and protecting health (Local Hazardous Waste Management Program in King County, 2016).

Korean Community

- The Korean participants reported that they are afraid of inspectors and government due to discrimination (Local Hazardous Waste Management Program in King County, 2016).
- The community values social events and church (Local Hazardous Waste Management Program in King County, 2016).

Vietnamese Community

- The Vietnamese participants reported that their community was very oral and enjoy talking amongst themselves (Local Hazardous Waste Management Program in King County, 2016)
- The Vietnamese community values authority (Local Hazardous Waste Management Program in King County, 2016)
- Church/religion are important to the community (Local Hazardous Waste Management Program in King County, 2016)
- They are a close-knit community (Local Hazardous Waste Management Program in King County, 2016)

Communities with No Community-Specific Information Found

- Black or African American, American Indian or Alaska Native, Asian, Native Hawaiian and other Pacific Islander, Two or more races, Middle Eastern and North African (MENA)

Concerns

- Across groups surveyed (Spanish-speaking, Korean, Filipino, Vietnamese, Black), the top concern was for associated risks from hazardous materials for children, specifically children's health (Emerging Design Consulting, 2012).
- Concern for personal health risks was most often cited if there was a perceived direct link. These concerns were about health risks after direct contact with products perceived as harmful—both products used inside the home and in the workplace. The greatest concern was for products with strong smells (Emerging Design Consulting, 2012).
- Environmental concerns were expressed in vague terms by groups surveyed (Spanish-speaking, Korean, Filipino, Vietnamese, Black), and many voiced a desire for more understanding of environmental impact (Emerging Design Consulting, 2012).
- The minority community's level of concern about hazardous products is generally high but varies by community (Local Hazardous Waste Management Program in King County, 2013).
- Workplaces were mentioned during immigrant focus groups as a major source of hazardous product exposure and stressed the need for education. Industries specifically mentioned included: landscaping, nail salons, beauty salons, hotel and office cleaning companies, and construction (Emerging Design Consulting, 2012).
- Affordability is a very real concern. It is important to keep service costs affordable. Other concerns included housing cost, challenges finding jobs without certificate/education, and experiences of racism, discrimination, etc. (Seattle Public Utilities, 2020).

COMMUNITY-SPECIFIC DATA

Asian Community

- Fifty percent of those surveyed were concerned about outdoor pesticides, and 42% were concerned with oil-based paints. Also, 48% were concerned about solvents (Local Hazardous Waste Management Program in King County, 2016).

Hispanic and Latinx Communities

- The Hispanic and Latinx communities have a high level of concern regarding health risks from hazardous products, particularly for children, but they do not have accessible avenues to obtain information (Emerging Design Consulting, 2012).
- Top ranking concerns from a focus group were (Emerging Design Consulting, 2012):
 - Concern for Potential Risks: contaminants in drinking water; finding information for health impacts due to exposure; contaminating the air and environment.
 - Areas of Concern: Family health; risk of cancer, effects on pregnant women, possible causes of autism; environment and air quality.
- There were some concerns about the community's lack of knowledge on these issues. "We don't protect ourselves when we clean. We need to educate ourselves about this." (Emerging Design Consulting, 2012)
- There was some concern for habits when using products, such as mixing products together and using concentrated products (Emerging Design Consulting, 2012).
- Of those concerned, 69% were concerned about risk of using indoor insecticide to children's health (Local Hazardous Waste Management Program in King County, 2016).
- While connection with products used in the participants' home countries was strong, especially "cloro" (bleach) and Fabuloso, concerns about health were stronger (TDW+Co, Radiant Consulting, 2018).

Communities with No Community-Specific Information Found

- Black or African American, American Indian or Alaska Native, Asian, Native Hawaiian and other Pacific Islander, Two or more races, Middle Eastern and North African (MENA)

Motivators for Behavior Change

WELL-BEING OF FAMILY AND THE ENVIRONMENT

- One motivator was education on how health is affected by choices [Latinos Promoting Good Health] (Hazardous Waste Management Program in King County, 2018).
- Government should fund work that addresses social determinants of health [Latinos Promoting Good Health] (Hazardous Waste Management Program in King County, 2018).
- Across groups surveyed (Spanish-speaking, Korean, Filipino, Vietnamese, Black), the top concern was associated risks from hazardous materials for children, specifically children's health (Emerging Design Consulting, 2012).

EDUCATION AND AWARENESS

- "Having children in school or who speak English leads to better informed families" [ECOSS] (Hazardous Waste Management Program in King County, 2018).
- "Level of education also correlated to better informed families" [ECOSS] (Hazardous Waste Management Program in King County, 2018).
- "Having individuals informed about the environment, health, and other topics is the key to breaking the chain" [Facilitadores] (Hazardous Waste Management Program in King County, 2018).
- "Education and tools are the most important influencers" [Facilitadores] (Hazardous Waste Management Program in King County, 2018)
- "Technology has made it easier to access information. Younger generations who learn through technology can teach their families" [Facilitadores] (Hazardous Waste Management Program in King County, 2018).
- "Regardless of education level, people can listen" [Facilitadores] (Hazardous Waste Management Program in King County, 2018).
- "Education campaigns that are relevant or have a shock factor were more likely to have an impact" [CISC] (Hazardous Waste Management Program in King County, 2018).
- "They assume they are fine because the U.S. is healthier compared to China" [CISC] (Hazardous Waste Management Program in King County, 2018).
- "Peer-to-peer training can be beneficial because people need to see empowered peers who look like them" [Somali Health Board] (Hazardous Waste Management Program in King County, 2018).
- "Being alienated from information, services, and active participation is a key barrier to becoming informed" [HOAS] (Hazardous Waste Management Program in King County, 2018).

OTHER SOCIOECONOMIC, HEALTH, AND INSTITUTIONAL FACTORS

- “Some have resources to mitigate barriers” [ECOSS] (Hazardous Waste Management Program in King County, 2018).
- “Behavior change depends on geographic location and the city” [ECOSS] (Hazardous Waste Management Program in King County, 2018).
- “Quality of employment, immigration status, education levels are all factors” [Facilitadores] (Hazardous Waste Management Program in King County, 2018).
- “For residents of rural areas, there may be less talk about health issues” [CISC] (Hazardous Waste Management Program in King County, 2018).

RELATIONSHIPS AND RESOURCES

- “CBO relationships with specific communities lead to improvements” [ECOSS] (Hazardous Waste Management Program in King County, 2018).
- “Government agency support and recognition of needs are important to behavior change” [ECOSS] (Hazardous Waste Management Program in King County, 2018).
- “People are more open to learning at a community level. Communities have a desire to learn and try something different” [Facilitadores] (Hazardous Waste Management Program in King County, 2018).
- “People are wary of outreach because they think the outreach people are selling something” [Facilitadores] (Hazardous Waste Management Program in King County, 2018).
- “Historically, there were lots of broken promises to this community” [Somali Health Board] (Hazardous Waste Management Program in King County, 2018).
- “Economics, culture and traditions are important factors to consider when thinking about behavior change” [Reach] (Hazardous Waste Management Program in King County, 2018).

FEAR

- “People may experience the fear of being known, having an opinion, and putting the family at risk” [Facilitadores] (Hazardous Waste Management Program in King County, 2018).
- “A key barrier is the inability to know more/investigate due to limited English proficiency, cost, etc.” [Facilitadores] (Hazardous Waste Management Program in King County, 2018).

- “Racism, anxiety, discrimination, and exclusion from the decision-making process can prevent behavior change” [Somali Health Board] (Hazardous Waste Management Program in King County, 2018).
- “Acculturation and assimilation are also important factors to consider” [SeaMar] (Hazardous Waste Management Program in King County, 2018).

COMMUNITY-SPECIFIC DATA

Hispanic and Latinx Communities

- When participants or their families developed a respiratory illness or a skin problem (like asthma or skin sensitivity), they began to use more “natural” products, either by their own accord or by a doctor’s recommendation (Esparza+, 2013).
- In some cases, when the children are very young, respondents tended to use some products that were less harsh or toxic for them. This sometimes changes when the children grow and when at a point it is okay for them to return to traditional products (Esparza+, 2013).
- A few individuals shared they were doubtful that environmental alternatives were as effective as what they are currently using, or that they prefer to use what they are familiar with (e.g. Fabuloso, bleach, Windex, Ajax, Pine-Sol, Roma, Clarasol, Magia Blanca). However, most were curious about alternatives and suggested they would be willing to make a change as long as the price was equivalent, it is effective (“cleans well”), it can disinfect, and it “smells clean” (TDW+Co, Radiant Consulting, 2018).
- During both the community café discussions and the intercept interviews, participants consistently identified information about homemade cleaners, environmentally-friendly products, and the health risks of certain cleaning products as the most important resource that would support a shift to using safer cleaning products (TDW+Co, Radiant Consulting, 2018).

Communities with No Community-Specific Information Found

- Black or African American, American Indian or Alaska Native, Asian, Native Hawaiian and other Pacific Islander, Two or more races, Middle Eastern and North African (MENA) communities.

Barriers and Opportunities

Barriers

- Industries experience barriers to switching to safer alternatives differently. The top three barriers identified for not switching: products do not work as well, manufacturer's specifications will not allow it, the business did not know about safer alternatives (EnviroIssues, 2019)
- Biggest challenges of waste management include affordability, efficiency, fast increase in population, humans and animals creating mess through (alleys), capacity, bridging gaps in education and adaptability, increasing promotion on recycling, facing fast growth of online shopping and delivery services (and waste) (Seattle Public Utilities, 2020).
- There's some frustration with continually being asked for input and not knowing how this feedback is used. Ideally, people want to see results in service delivery and engagement. But if this isn't possible, communicating how information is (or isn't) being used would be appreciated (Seattle Public Utilities, 2020).

The following information comes as direct quotes from interviews conducted with 14 King County CBOs (Hazardous Waste Management Program in King County, 2018) unless otherwise noted.

ACCESSIBILITY

- "Language barriers" [ECOSS]
- "Digital literacy barriers" [ECOSS]
- "People are disconnected from their children due to language barriers" [SeaMar]
- "Fear and extra challenging for undocumented immigrants" [CHAC]
- "People lack the immigration or citizen status to access basic services" [ACRS]
- "Lack of cultural competencies in services and language is a barrier" [ACRS]
- "Educational awareness, capacity building need for organizations to help educate, policy priorities and crime" [CIRCC]
- "Remedies to people who do not have the privilege to designate an area for dangerous products" [SOAR]
- Frustration at inability to understand product labels (Emerging Design Consulting, 2012).

EDUCATION AND AWARENESS

- “Unaware of community organization and leaders” [ECOSS].
- “Unaware of issues until there is a problem” [ECOSS]
- “Lack of education” [ECOSS]
- “Aromatic doesn’t mean healthy, but it is rooted in cultural customs” [Facilitadores]
- “Very low literacy rates among our clients, education is not a priority—they work too many hours” [CISC]
- “Literacy level” [Somali Health Board]
- “Lack of proper health education and cost of unhealthy versus healthy foods” [HOAS]
- “Knowledge gap; people need education but they workday and night, many working 2-3 jobs to support their families” [Eritrean Association]
- “We need to be able to communicate to families how to identify dangerous products” [SOAR]
- “People don’t know the impacts of toxic materials on child development” [SOAR]

ATTITUDES AND BEHAVIORS

- “Lack of trust in government” [ECOSS]
- “Not everyone wants prevention” [Facilitadores]
- “People want to try new things such as sprays that affect the environment” [Facilitadores]
- “Trust” [Somali Health Board]
- “Ethiopian cultural traditions may be environmentally hazardous” [REACH]

OTHER SOCIOECONOMIC, HEALTH, AND INSTITUTIONAL DISPARITIES

- “Lack of access to public transportation” [ECOSS]
- “For most people, their first concern is putting bread on the table and keeping the roof above their head” [CISC]
- “Housing issues, employment, poor school districts” [Somali Health Board]
- “Youth have no opportunity to exercise/play” [Somali Health Board]
- “Obesity” [Somali Health Board]
- “Mental health” [Somali Health Board]
- “Require that childcare and transportation needs are addressed” [Latinos Promoting Good Health]
- “Americanized children affect mental and physical health” [SeaMar]
- “Parents and community members attentive to health, diet and exercise” [El Centro]

- “Public housing is shrinking in King County/Seattle, and low-income housing waitlist is long” [ACRS]
- “Environment and climate change disproportionately affect people in the south end of King County” [ACRS]
- “Transportation is not accessible for these communities; people must live farther away from where they work” [ACRS]
- “Higher costs for utilities, subsidy programs are not available to certain immigrant communities” [ACRS]
- “Healthy eating information is given to schools and kits while excluding parents, so kids have two different standards: one at school and one at home” [HOAS]
- “Lack of affordable housing, access to healthcare (especially for undocumented residents), accessible transportation, representation in the environmental movement (including advocacy, cleanups, education), concern for high-need communities, quality and frequency of basic services” [CIRCC]
- “Access to medicine hasn’t improved or changed in the past few years” [Eritrean Association]
- While the entire community is deeply impacted by COVID-19, underserved communities and BIPOC are experiencing disproportionate impacts (Seattle Public Utilities, 2020).

COMMUNITY-SPECIFIC DATA

Asian Community

- Asian communities have had to deal with horrific racism on top of a health and economic crisis during COVID-19 (Seattle Public Utilities, 2020).

Hispanic and Latinx Community

- The top three barriers for using safer cleaning alternatives are price, unfamiliarity with environmentally friendly cleaning products or cleaning with natural products found in the home, and smell (TDW+Co, Radiant Consulting, 2018).
- The two main barriers of using vinegar and baking soda are:
 - The smell left was not nice (either no smell or vinegar smell), and it is believed that vinegar and baking soda do not clean as well (Esparza+, 2013)
- While there were barriers identified by some of the participants to engaging in safer cleaning practices --higher cost, concern about alternative products’ ability to disinfect or clean effectively, time to make homemade cleaners, and the smell of (or lack of) alternative products, it is important to note that

many of the 102 intercept interview participants were already engaged in safer cleaning behaviors (TDW+Co, Radiant Consulting, 2018).

- Within the Latinx community, there are indigenous groups with Spanish as a second language who have specific language needs for hazardous waste terminology (Emerging Design Consulting, 2012).

Communities with No Community-Specific Information Found

- Black or African American, American Indian or Alaska Native, Asian, Native Hawaiian and other Pacific Islander, Two or more races, Middle Eastern and North African (MENA) communities.

Opportunities

Information in this section came from interviews with 14 King County-based CBO's unless otherwise noted (Hazardous Waste Management Program in King County, 2018):

PROCESSES AND PROTOCOLS

- "Don't go in and collect information and leave" [ECOSS]
- "Invite community leaders to participate" [ECOSS]
- "Provide childcare and food" [CISC]
- "Offer something after work hours" [CISC]
- "Share out best practices, toolkit" [Latinos Promoting Good Health]

OUTREACH STRATEGIES

- "Use multiple strategies to reach people" [ECOSS]
- "Hire within the community" [ECOSS]
- "Transcreate marketing materials" [ECOSS]
- "Visual tools help people learn, this is more effective than a manual" [Facilitadores]
- "In person trainings, repeating what needs to be known—that will drive adoption" [Facilitadores]
- "Make it culturally relevant, in-language and in the community" [CISC]
- "Encourage community and word of mouth sharing" [CISC]
- "Use newspaper stories" [CISC]
- "Focus groups" [Somali Health Board]
- "Word of mouth" [Somali Health Board]
- "Culturally and linguistically appropriate messaging" [Latinos Promoting Good Health]
- "Involve local businesses" [Latinos Promoting Good Health]

- More outreach to the community and to schools, so people stay tune with information and younger generation can set a good example and be the role model in their home (Seattle Public Utilities, 2020).
- Face-to-face outreach is particularly important for collecting people's views from non-English speaking community (Seattle Public Utilities, 2020).
- Non-white identifying businesses indicated a preference for more interactive forms of engagement with BSP to access their services rather than independent learning resources (EnviroIssues, 2019).
- "Training sessions with childcare providers and parents" [HOAS]

RELATIONSHIP BUILDING

- "Incentives for participations" [ECOSS]
- "Personal contact works best, explain why you need to attend, etc. ask the right question to inspire" [CISC]
- "Support community organization's success by having a presence and giving them a voice" [Somali Health Board]
- "Train community leaders, create a youth program" [Latinos Promoting Good Health]
- Outreach needs to be translated and culturally appropriate, making use of and building relationships with trusted messengers where relevant (Seattle Public Utilities, 2020).
- "Hire from the community—train and serve as ambassadors to reach people in mosques and churches" [Reach]
- "Build capacity among BIPOC-led organizations" [CIRCC]
- "Promote diverse leadership" [CIRCC]
- "Build capacity for people to teach in the community (doctors, nurses) about harmful materials, best health and cleaning practices" [Eritrean Association]

CONNECT TO OTHER COMMUNITY CONCERNS

- "More conversations around health concerns" [CIRCC]
- "Eliminate structural and systemic racism" [CIRCC]
- "Cleanup toxic sites in Washington" [CIRCC]
- "Build affordable housing" [CIRCC]

COMMUNITY-SPECIFIC DATA

Hispanic and Latinx Communities

- Unanimous desire for more information in Spanish and suggestion for community-based models for education and outreach (Emerging Design Consulting, 2012).
- Participants provided information on community education common in Latin American, which has strong community cohesion and sense of collective responsibility. Models included grassroots and peer education, working with their own community organizations for outreach and education (Emerging Design Consulting, 2012).
- Primary source of information about health risks and products from Spanish-speaking community resources such as word of mouth, community-based projects, community health clinics and community centers, and workplaces (Emerging Design Consulting, 2012).
- This community has a strong sense of identification with their own community organizations and recommended methods of outreach and education that fits their positive experience with peer education and high value on mutual community support (Emerging Design Consulting, 2012).
- Participants reported that workshops, focus groups, and other educational events were the best way to reach the community. Providing childcare, gas, and other incentives were essential and effective in getting people to attend (Alma Villegas Consulting, 2016).
- The Latinx community responded well to the ambassador relationship model, and to ensure effectiveness of these relationships, they must continue to be maintained (Alma Villegas Consulting, 2016).

Communities with No Community-Specific Information Found

- Black or African American, American Indian or Alaska Native, Asian, Native Hawaiian and other Pacific Islander, Two or more races, Middle Eastern and North African (MENA) communities.

Sources Reviewed

Table 2-1 lists sources cited in the above literature review.

Table 2-1 Sources cited

Citation	Author	Title	Description
(Local Hazardous Waste Management Program in King County, 2013)	King County Local Hazardous Waste Management Program in King County	<i>Summary of the Local Hazardous Waste Management Program's 2012 Residential Surveys</i>	This document describes three surveys that the Local Hazardous Waste Management Program in King County (LHWMP) conducted in 2012 to investigate residents' attitudes, awareness and behavior about household hazardous products and household hazardous waste (HHW).
(Emerging Design Consulting, 2012)	Emerging Design Consulting for the Local Hazardous Waste Management Program in King County	<i>2012 Household Hazardous Waste Survey of Special Populations in King County</i>	This report describes the methodology and results of focus groups and interviews of Spanish-speaking, Korean, Filipino, Vietnamese and African American residents living in south King County. The three surveys are intended to complement each other and to provide an updated, more coherent snapshot of residents' attitudes, awareness and behavior about household hazardous materials and waste.
(Hazardous Waste Management Program in King County, 2018)	Local Hazarounds Waste Management Program in King County, Interviewees; 14 Community-based Organizations	<i>LHWMP Community Interview Findings</i>	In 2019, the Hazardous Waste Management Program conducted interviews with 14 community-based organizations in King County. Interviewees: Environmental Coalition of South Seattle (ECOSS), Facilitadores de Reciclaje, Chinese Information and Service Center (CISC), Somali Health Board, Latinos Promoting Good Health, SeaMar Community Outreach Team, Community Health Advocates Collaboration (CHAC), El Centro de la Raza, Asian Counseling and Referral Service (ACRS), African Americans Reach and Teach Health Ministry (AARTH), Horn of Africa Services (HOAS), Coalition of Immigrants and Refugees and Communities of Color (CIRCC), Eritrean Association, and SOAR.

Citation	Author	Title	Description
(Alma Villegas Consulting, 2016)	Alma Villegas Consulting for the Hazardous Waste Management Program in King County	<i>King County Hazardous Waste Management Program Multi Cultural Research Project (Latino Investigation Project)</i>	30 Spanish-speaking residents participated in an interview to get feedback on the current LHWMP materials around stop light label reading tool. Participants were asked questions about cleaning traditions, feedback on the label reading messaging, and disposal. A phone survey was conducted with 170 Spanish-speaking King County residents. Participants were asked about cleaning product disposal and their opinions about cleaning products found in stores.
(Puget Sound Regional Council, 2019)	Puget Sound Regional Council	<i>Vision 2050: Equity Briefing Paper</i>	This briefing paper provides background on PSRC's work on equity to date and provides additional information from peer organizations. It identifies the products PSRC will develop as part of VISION 2050 and considerations for how equity could be addressed in VISION 2050 and future PSRC work.
(EnviroIssues, 2019)	EnviroIssues for the Hazardous Waste Managemetn Program in King County	<i>Business Services Program: Safer Alternative Barriers and Motivators for King County Businesses</i>	BSP collected over 400 surveys from King County Business Owners to learn of their needs related to preventing pollution from industry practices, accessing safer alternatives, and protecting workers from hazardous waste exposure. This research project aimed to understand how business owners are accessing safer product alternatives in their industries and how BSP can support the needs of business owners to access safe products that protect workers, customers and the environment.

Citation	Author	Title	Description
(Puget Sound Regional Council, 2018)	Puget Sound Regional Council	<i>Central Puget Sound Demographic Profile</i>	PSRC set out to meet two primary objectives in preparing this environmental justice demographic profile. To compile key demographic data and identify the locations of minority and low-income populations in the central Puget Sound region, as well as other populations of interest, for environmental justice consideration in conducting regional transportation, economic development, and growth management planning and program activities and public outreach.
(Gould & Cummings, 2013)	L. Gould and B. Cummings	<i>Duwamish Valley Cumulative Health Impacts Analysis: Seattle, Washington</i>	Research grant from U.S. EPA to conduct a Cumulative Health Impacts Analysis (CHIA) to document and quantify the Duwamish Valley's environmental health status relative to other areas of Seattle.
(King County Hospitals for a Healthier Community, 2018/2019)	King County Hospitals for a Healthier Community	<i>King County Community Health Needs Assessment</i>	This report documents the community health needs of King County and provides a foundation to meet the Affordable Care Act (ACA) and Washington state requirement for non-profit hospitals to conduct a Community Health Needs Assessment (CHNA) every three years. The collaborative CHNA is designed to highlight strengths and areas of need that cut across geographies, thereby presenting opportunities for collaboration between public health, hospitals, health systems, community organizations, and communities.
(Puget Sound Sage, 2019)	Puget Sound Sage	<i>Powering the Transition</i>	In 2019, Puget Sound Sage embarked on a research project to determine our community's top energy policy priorities. We heard opinions from hundreds of community members about climate change, renewable energy, transportation, housing, utilities, and more. Despite our community's great diversity of identities and experiences, clear patterns emerged. This is what we learned.

Citation	Author	Title	Description
(Felt, 2017)	C. Felt, King County Office of Performance, Strategy and Budget	<i>King County's Changing Demographics: Investigating our Increasing Diversity</i>	PowerPoint presentation regarding changing demographic statistics in King County.
(ECOSS, Alma Villegas Consulting, 2018)	ECOSS and Alma Villegas Consulting for the Local Hazardous Waste Management in King County	<i>Business Services Technical assistance & Incentive Program (TAIP) Interviews 2018 Final Report</i>	ECOSS partnered with Alma Villegas Consulting to conduct research with King County business owners with limited English proficiency to improve pollution prevention services on behalf of King County's Business Services Technical Assistance and Incentive Program.
(Program)	Local Hazardous Waste Management Program of King County	<i>Current State: 50 Equity Indicators</i>	This document reviews 50 indicators that describe the current state of environmental and human health in King County.
(Esparza+, 2013)	Esparza+ for the Hazardous Waste Management Program in King County	<i>Focus Group Report Toxic Waste Management - October/November 2013</i>	A Focus group conducted with 32 Hispanic women divided by age groups after an LHWMP Hispanic marketing campaign. They were asked about awareness of LHWMP, knowledge of cleaning products, cleaning product habits, and awareness of the marketing campaign.
(Seattle Public Utilities, 2020)	Seattle Public Utilities	<i>Strategic Business Plan Community Engagement Report, Section D</i>	Seattle Public Utilities (SPU) conducted community outreach to inform the development of the 2021-2026 Strategic Business Plan (SBP). This report is focused on community engagement activities.
(Local Hazardous Waste Management Program in King County, 2016)	Kristin Pace Ph.D., Local Hazardous Waste Management Program	<i>2016 Audience Research Summary</i>	This document summarizes themes that have emerged from audience research conducted by LHWMP from 2012-2015.

Citation	Author	Title	Description
(TDW+Co, Radiant Consulting, 2018)	TDW+Co and Radiant Consulting for the Local Hazardous Waste Management Program in King County	<i>Native Spanish Speaking Immigrant Behavior Study</i>	Summary of two Community Cafe and intercept survey of 170 Spanish speaking residents on barriers and motivators to using safer alternative cleaning products.
(SOAR, 2015)	SOAR for the Local Hazardous Waste Management Program in King County	<i>SOAR Promotora Pilot Evaluation: Raw Results</i>	Raw results of a pre-test post-test pilot evaluation of a peer training model for safer cleaning and lead. 453 participants speaking Cantonese, Mandarin, Purepecha, Spanish, and Tagalog/English completed the pre-test survey.
(Seattle Office for Civil Rights, 2016)	Seattle Office for Civil Rights	<i>2016 RSJI Community Survey</i>	Summary report of a survey measuring the perspectives of those who live, work and go to school in Seattle regarding satisfaction with City services, neighborhood quality, housing affordability, and the role of government in addressing racial inequities.

Table 2-2 lists sources that we reviewed but that were not cited in this document because they were not sufficiently relevant to our research objectives.

Table 2-2 Sources reviewed but not cited

Author	Title	Description
Washington Toxics Coalition, Toxics Free Future	<i>Chemicals in products, people and environment</i>	Toxic-Free Future has various studies on products, people and the environment. Their focus has been chemicals such as flame retardants, PFAS, phthalates and heavy metals.
Office of Immigrant and Refugee Affairs (OIRA)	<i>City of Seattle Language Access Toolkit</i>	Instructions on how to ensure that English language learners can access the information and services they need and that departments are able to effectively serve them.
Office of Immigrant and Refugee Affairs (OIRA)	<i>City of Seattle Priority Languages Tier Languages</i>	List of top tier languages in Seattle.

Author	Title	Description
Center for Earth Energy & Democracy	<i>Twin Cities Environmental Justice Mapping Tool</i>	Interactive EJ Mapping Tool lets you compare environmental risks across communities based on race and income.
United States Environmental Protection Agency (U.S. EPA)	<i>EJSCREEN: Environmental Justice Screening and Mapping Tool</i>	EJSCREEN is an environmental justice mapping and screening tool that provides U.S. EPA with a nationally consistent dataset and approach for combining 11 environmental and 6 demographic indicators.
Garcia Research, The Clorox Company	<i>Hispanic Community Cleaning Habits</i>	A short article examining how Hispanics view and clean their homes during the holiday season.
K'a'rcher	<i>International Study on Cleaning Habits</i>	International study on cleaning habits of people from Germany, Japan, U.K., France, Argentina, and the U.S.
Claritas LLC	<i>Lifetime Spending</i>	The report offers marketers unique insights into how to appeal to Hispanic American consumers, one of the nation's fastest-growing multicultural subsets.
Minnesota Department of Health	<i>Minnesota Biomonitoring: Chemicals in People</i>	A program in Minnesota dedicated to monitoring and measuring levels of chemicals in Minnesotans and whether exposures differ between groups and over time.
PolicyLink, USC Program for Environmental and Regional Equity	<i>National Equity Atlas</i>	A tool for the growing movement to create a more equitable, sustainable, and resilient economy. It is a comprehensive resource for data to track, measure, and make the case for inclusive growth in America's regions, and states, and nationwide. The Atlas contains data on demographic change, racial and economic inclusion, and the potential economic gains from racial equity for the largest 100 cities, largest 150 regions, all 50 states, and the United States as a whole.

Author	Title	Description
San Francisco Health Improvement Partnership	<i>SFHIP: San Francisco Community Health Needs Assessment</i>	A cross-sector collaboration designed to improve the health and wellness of all San Franciscans. The CHNA is a powerful tool to help understand the health disparities that exist in San Francisco.
Centers for Disease Control and Prevention (CDC), Agency for Toxic Substances and Disease Registry (ATSDR)	<i>Social Vulnerability Index (SVI)</i>	ATSDR's Social Vulnerability Index uses U.S. census variables at tract level to help local officials identify communities that may need support in preparing for hazards or recovering from disaster.
Front and Centered	<i>The Washington Environmental Health Disparities Map</i>	Where you live, your income, race or language ability shouldn't determine how healthy you are. For the first time, people in Washington state will be able to compare how their neighborhoods rank for environmental health risks with the help of a new interactive mapping tool.
United Way of King County	<i>Understanding King County Racial Inequities</i>	To reach the 2015-2020 Strategic Plan goals, UWKC will employ a series of strategies to respond to emerging community needs and service gaps, make strategic investments in nonprofit agencies and employ a range of social change strategies. One key strategy is to identify and focus on racial and ethnic disparities in financial stability, education and other indicators of well-being for communities of color in King County.
Local Hazardous Waste Management Program	<i>LHWMP Audience Research Reports, Trainings, and Tools (2014-2018)</i>	A compilation of abstracts for research summary reports and major training documents that includes reports and research summaries on dry cleaning, business services, EnviroStars, peer training models, etc.

Author	Title	Description
Local Hazardous Waste Management Program	<i>Collections Ad Concept Testing Results Summary</i>	Online survey of 402 King County residents regarding potential advertisements for a marketing campaign to promote HHW facilities.
Local Hazardous Waste Management Program	<i>Secure Medicine Return Baseline Survey Data Summary</i>	A baseline telephone survey was conducted with 997 King County residents to understand current attitudes and behaviors around medicine disposal.
Local Hazardous Waste Management Program	<i>The 2012 On-Site Survey of Household Hazardous Waste Facility Customers</i>	Summary of findings from four focus groups that were held to better understand the attitudes and behaviors of residents living in the Factoria Household Hazardous Waste Collection Facility service area.
Local Hazardous Waste Management Program	<i>The 2012 On-Site Survey of Household Hazardous Waste Facility Customers</i>	This report describes the methodology and results of customer surveys that were collected at the Program's four regular collection sites (in Auburn, Factoria, North Seattle and South Seattle) and at two Wastemobile collection events (in Bothell and Covington).
Linda Rae Murray, MD, MTH	<i>Sick and Tired of Being Sick and Tired: Scientific Evidence, Methods, and Research Implications for Racial and Ethnic Disparities in Occupational Health</i>	The extent of racial/ethnic disparities in occupational health have not been well studied. Reviews the evidence about workers of color and occupational injuries and disease. Patterns of employment in the U.S. Workforce according to education, gender, and race/ethnicity are discussed, and how these patterns might cause disproportionate exposure leading to disproportionate disease and injury.
Jan Birdsey, MPH; Toni Alterman, PhD; Martin R. Petersen, PhD	<i>Race, Occupation, and Lung Cancer: Detecting Disparities with Death Certificate Data</i>	Objectives: To determine whether the analysis of death certificate data would reveal the same relationship among race, and lung cancer mortality observed by a large cohort.

Author	Title	Description
Nathaniel C. Briggs MD, MSc; Robert S. Lenice, MD; H. Irene Hall, PhD; Otis Cosby, MD, MSPH; Edward A. Brann, MD; Charles H. Hennekens, MD, DrPH	<i>Occupational Risk Factors for Selected Cancers Among African American and White Men in the United States.</i>	This study examined occupational risks for non-Hodgkin's lymphoma, Hodgkin's disease, and soft-tissue sarcoma among African American and White men.
Hester J. Lipscomb, Dana Loomis, Mary Anne McDonald, Robin A. Argue, Steve Wing	<i>A Conceptual Model of Work and Health Disparities in the United States</i>	The authors argue that work should be considered explicitly as a determinant of health disparities. Their conceptual model and empirical evidence, built on previous contributions, describe how work contributes to disparities in health on multiple levels.
James C. Robinson	<i>Trends in Racial Inequality and Exposure to Work-related Hazards, 1968 - 1986</i>	This article examines trends in the risk of work-related injury and acute illness of Blacks relative to whites from the late 1960s to the mid-1980s. The findings are mixed, with a convergence being observed in injury rates for Black and white men but a slight divergence observed for Black and white women. The article concludes with a discussion of the implications of these findings for policy initiatives in equal opportunity and occupational health.
Hazardous Waste Management Program Communications	<i>Language Justice Toolkit</i>	Planning guides and checklists, covering translation, interpretation, transcreation, language line, ethnic media, various meeting formats. Lists of languages and country of origin. Neighborhood Language maps.

Author	Title	Description
Seattle Public Utilities	<i>A. SBP Voice of the Customer Research Inventories</i>	To inform its 2021-2026 Strategic Business Plan (SBP), SPU has inventoried and reviewed pertinent market research and outreach conducted by the utility and others relevant to its customer base and utility services.
Seattle Public Utilities	<i>B. SBP Business Interviews Report</i>	17 interviews across a range of business types. Feedback on better ways to work with businesses: Earlier input on policy issues, regular more effective communications, incentives over enforcement, creativity and flexibility
Seattle Public Utilities	<i>C. SBP Customer and Employee Survey Report</i>	Seattle Public Utilities (SPU) conducted an online survey of customers and employees to inform the development of the 2021-2026 Strategic Business Plan (SBP). Research findings will also inform the utility's ongoing service delivery and future customer engagement.
Seattle Public Utilities	<i>SBP Research and Outreach Summary</i>	Seattle Public Utilities (SPU) conducted research and community outreach to engage and learn from customers and community members as part of the 2021-2026 Strategic Business Plan (plan) process. This work will inform content and language in the plan, ongoing SPU service delivery, and engagement with customers and the community. Key findings from Reports A, B, C, and D.
Local Hazardous Waste Management Program; Kristin Pace, Ph.D.	<i>2014 Voice of the Business Customer Survey: Summary of Result</i>	The purpose of this survey was to understand business attitudes and practices towards hazardous waste and product management, what types of services businesses would like to receive from the Local Hazardous Waste Management Program in King County (Program), and some key demographic information from businesses.

2.2 Program Staff Focus Groups

Introduction

Background

The stakeholder plan developed for the 2021 Hazardous Waste Management Plan (2021 Plan) process outlined specific objectives for prioritizing the voice of traditionally underserved and overburdened communities. However, the extended impacts of the COVID-19 pandemic were unknown when the stakeholder plan was written. The project work related to priority communities could not be delayed due to the project's inflexible timeline. Therefore, the project needed to adapt its research approach while considering the extra burdens on CBOs and communities and restrictions on in-person gatherings.

In response, the project team developed a scaled-back approach, focusing on three strategies consistent with our stakeholder plan, to make the most of available knowledge and minimize burdening our communities and CBOs.

1. **Literature Review:** Review existing research and data about priority communities from both internal and external sources.
2. **Internal Staff Focus Groups:** Gather institutional knowledge and advice from within the Program about working with priority communities.
3. **Community Connections CBO Focus Groups:** Gather community insights from CBO staff, and community representatives to the extent feasible.

This summary highlights feedback garnered from the second strategy: Internal Staff Focus Groups.

Objectives

The objectives of these focus groups were to:

- Gather institutional knowledge from within the Program about priority communities and diverse businesses from current and recent Program engagements.
- Gather advice on effective and appropriate engagement strategies in the context of the pandemic, including leveraging existing CBO and community relationships, for research about awareness, knowledge, priorities, and practices of priority communities and diverse businesses.

- Provide participants with information about the 2021 Plan, garnering buy-in and support for our community research approach while centering and acknowledging Program work to date.
- Use insights gained to shape further research and inform major themes for community partnering recommendations in the final 2021 Plan.

Approach

In June 2020, we conducted three focus groups with a total of 12 Program staff, all via video conference due to the constraints on in-person meetings during the pandemic. One group ran out of time and completed their responses via a survey. Each group given the detailed comments from their respective groups for review and correction.

We solicited participation under guidance from the Program's Racial Equity Manager, mainly from membership of the Program's Racial Equity Implementation Plan—Community Partnerships Work Group. Participants ranged in areas of expertise and years of experience, from one year to over 20 years.

The focus groups were moderated by Tere Carral of Bridge Latino, a subconsultant to Cascadia Consulting Group (Cascadia)—the primary consultant supporting the 2021 Plan project. Alyssa Rodriguez of Cascadia and Jose Chi of ECOSS provided moderation and notetaking support. Mr. Chi, as the designated Community Connections partner representative on the project, has been a project team member since the start of the planning phase. The same moderator's guide was used for all three groups. The moderator's guide and detailed notes are maintained in the 2021 Plan project files.

For each session, we asked participants about:

- The CBOs, priority communities, and diverse businesses with whom they have worked or are currently working, what they have learned from those experiences, and why it is important to focus on these communities.
- The challenges and opportunities of working with communities during current challenges of the pandemic and racial unrest.
- Their level of alignment with the Program's current racial equity vision, the Program's mission statement, and the 2021 Plan's definition of priority communities.
- Other advice for how the Program can improve its work with communities.

After the conclusion of each focus group, all participants were given the detailed comments from their respective groups for review and correction.

Discussion Summary by Area of Inquiry

This summary highlights feedback garnered from three focus groups with Program staff members. It presents the summarized feedback in two segments:

- Learnings from working in and with CBOs and communities
 - Relationships and relationship building
 - Connecting—current constraints and opportunities
 - Knowledge about communities and CBOs from past engagement
 - Awareness
 - Culture and lifestyle
 - Motivators and barriers
- Alignment with mission, vision, and goal statements

The moderator's guide and detailed notes from these sessions are maintained in the 2021 Plan project files.

Working in and with CBOs and Communities

RELATIONSHIPS AND RELATIONSHIP-BUILDING

- The organization has focused a lot of their efforts in reaching and learning from the Hispanic community and not as much with other communities.
- The program needs to assure fair compensation for CBOs and community participants and improve Program-wide perception that this is happening.
- Being a member of a community and having a personal relationship with CBOs are the best ways to engage with that community. It is important to be out participating in the community, be part of the community, and form lasting relationships. The Program has made missteps working with the community in the past.
- Indian Country relationships and politics must be approached differently. Successful engagement entails engaging as government to government and spending years developing relationships.
- Participants have worked and are working with different CBOs including: ECOSSE, Sea Mar, Mother Africa, IDA, Korean Association, Consulate of Mexico, Casa Latina, Centro de la Raza, Afghani Health Initiative, ReWA, Facilitadoras, Somali Health Board, and faith-based communities.

CONNECTING—CURRENT CONSTRAINTS AND OPPORTUNITIES

- Challenges during pandemic have varied. For example, video meetings and phone consults replaced in-person visits. Residential and business challenges are very different. In-person visits are starting up again with COVID-safety adjustments.
- Internet access is now more vital for connecting to services and information. Internet is less accessible in priority communities and low income. It is also important to enable community participation in meetings, such as child-care. Field visits have largely adapted to doing as much as possible virtually.
- Working with the business sector requires different approaches compared to the residential sector. Approaches must be tailored per the many variations of business type and cultures within them. The Program should explore trade associations, trade groups, chamber of commerce coalitions, and EnviroStars.
- Use levels of the Wastemobile has not been as impacted by current events. Fewer seniors and disabled persons are using suspended collection-at-home services.

KNOWLEDGE ABOUT CBOS AND COMMUNITIES FROM PAST ENGAGEMENT

Awareness

- There is low awareness of hazardous items, exposure, and reduction of hazardous items among priority communities. There is a need to gather data on awareness as the last information is from ten years ago.
- Awareness and use of collection services increased, but awareness and use are still higher among older white men compared to priority communities. Barriers to more use of collection services include transportation, waiting in line (especially by business employees), and mistrust of government. Awareness of collection services evidently has increased as a result of a one-team approach to marketing and communication.

Culture and Lifestyle

- Cultural practices and lifestyle choices (for example, place to live, job) have a large impact on interaction with hazardous materials.
- Lifestyle risks include chemicals at ethnic hair shops, certain traditional spices, cultural norms around what “clean” looks/smells like, employment in jobs like cleaning and automotive, and homes in buildings that also have businesses that use chemicals.

- Cultural background influences the use of different chemicals like the use of bleach and different spices, and buying in bulk or at low prices, which may lead to more harmful chemicals. Different countries use different chemicals in various ways. Exposure information is not provided.

Motivators and Barriers

- Communities prefer to engage and learn from trusted members of their own communities. It is important to reach priority communities in language and in culture, to cater and customize by community.
- Motivators to behavior change include personal health and the environment. For businesses, the potential for avoiding financial risks from employee exposures is a motivator. In order to promote a change of habits, we need to communicate tangible benefits and make it personal. For example, to a dry cleaning business, we would mention the benefits of—hands not hurting anymore.
- Barriers regarding safer cleaning include perceptions that safer products are not as effective and the cost of and access to safer products.

Alignment with Mission, Vision, Goals Statements

Session participants were asked to react to some key mission, vision, and goal statements of the Program. The purpose was to check alignment with these statements and gauge the perspective from which this cross-section of staff was responding to subsequent questions. Some participants went further in offering potential adjustments that will strategically guide the Program in the future.

Program's racial equity vision statement: *Race is not a determinant of hazardous materials exposure in households and businesses in King County.*

- All participants expressed awareness of, and agreement with, this statement. Some suggestions included rewording "race" to "racism," and rewording to remove "not." Some comments were about the Program needing to do a lot more to achieve this vision.

Program's mission statement: *The Hazardous Waste Program's mission is to protect and enhance public health and environmental quality in King County by reducing the threat posed by the production, use, storage, and disposal of hazardous materials. This mission is achieved through moderate risk waste collection services, business and residential outreach and technical assistance, and policy initiatives.*

- Participants expressed general awareness of, and agreement with, this statement. Comments included critique of its wordiness and the need for the Program's lines of business to do more toward this mission for BIPOC, low income, and geographic equity.

The 2021 Plan Project's racial equity vision: *The 2021 Plan will be developed with, by, and for the communities we serve in order to ensure the resulting plan moves us toward the Program's mission and racial equity vision - that race is not a determinant of hazardous materials exposure in King County.*

- Participants were generally unaware of this statement. Comments included critique of the Program/Project's ability to measure success and to do actions to achieve this vision.
- The CBO representative participation on the project team needs to be more visible.

The 2021 Plan Project's definition of priority communities: *Priority communities are traditionally underserved and overburdened communities, including:*

- *Black/African American people*
- *Non-Black people of color*
- *Indigenous/First Nations/Alaskan Native*
- *Individuals of non-dominant, marginalized ethnicity and cultural background*
- *King County identified first- and second-tier language speakers and descendants*
- *Refugees or immigrants*
- *People subjected to poverty or low incomes*
- *Businesses whose owners or employees are predominantly in these groups*
- *People who are more vulnerable when exposed to harmful chemicals due to age, pregnancy, health factors, or other underlying conditions*
- The concept of "priority communities" is generally well understood by the participants, and it is well understood that these communities are overburdened and most impacted by hazardous materials. Some comments questioned the organization's focus on these community groups, especially as it relates to resources and time spent on these communities currently.

- Other comments highlighted the necessity to be sensitive to attempts to group, or lump, “non-white” groups of people. Grouping can have the effect of appearing to ignore what individuals prefer to be called and ignoring the wide range of experiences and cultures of different identities. It is also necessary to not solely define these groups as underserved and overburdened. Grouping can also be a challenge for accountability—defining accountability to whom for what and holding ourselves to it.

Other Comments

- Be thoughtful about ramping back up engagement with community considering the long-term effects of COVID. Avoid over-burdening. Find different ways to engage. Give to communities before asking for something.
- CBOs can fulfill the preference of communities to engage and learn from trusted community members, however it’s necessary to watch out for repeatedly engaging familiar CBOs, and risk missing emerging communities and CBOs.
- Don’t ask communities “what chemicals are your worried about?” Instead, ask about health concerns.
- Empower internal employees of color to lead and to reach out their communities. Employees of color are a very valuable resource that should be used to reach priority communities. The Program is perceived as a largely white-lead organization.
- Follow and monitor immigration and demographic changes in the county. And when changes happen, the organization needs to be flexible and fast to adapt to these new demands. Meet communities where they are.
- To increase awareness, invest in advertising and leverage government and agency partners. Do culturally relevant outreach through community leaders. Leverage issues that cross agencies.
- Put more resources into eliminating hazardous materials. Fund more work on safer alternatives and research.
- Change (the Program) to be more flexible and adaptive to new demands, and to be able to efficiently pursue cross-cutting opportunities with other agencies. The Program should be able to change more quickly.
- Send a more direct price signal regarding collection, which is currently perceived as “free” and therefore a disincentive to choosing safer products. Expand at-home collection service and vouchers for collection facilities for businesses.

Conclusion

Participants reflected rich and varied experiences working with CBOs and in community. The 2021 Plan project team appreciates the energy and forthrightness of their participation in these focus groups.

This report is also being shared with the Program's Racial Equity Manager, to inform the work underway to build the Program's community partnering capacity.

2.3 Community-Based Organization Focus Groups

CBO Focus Group Summary Report

Introduction

BACKGROUND

The stakeholder plan outlined specific objectives for prioritizing the voice of traditionally underserved and overburdened communities. However, the extended impacts of the COVID-19 pandemic were unknown when the stakeholder plan was written. The project work related to priority communities could not be delayed due to the project's inflexible timeline. Therefore, the project needed to adapt its research approach while considering the extra burdens on CBOs and communities and restrictions on in-person gatherings.

In response, the project team developed a scaled back approach, focusing on three strategies consistent with our stakeholder plan, to make the most of available knowledge and minimize burdening our communities and CBOs.

1. **Literature Review:** Review existing research and data about priority communities from both internal and external sources.
2. **Internal Staff Focus Groups:** Gather institutional knowledge and advice from within the Program about working with priority communities.
3. **Community Connections CBO Focus Groups:** Gather community insights from CBO staff, and community representatives to the extent feasible.

This summary highlights feedback garnered from the third strategy: Community Connections CBO focus groups.

OBJECTIVES

The objectives of these focus groups were to:

- Gain insights into community awareness, knowledge, attitudes, concerns, priorities, behaviors, exposures, and vulnerabilities related to hazardous materials.
- Gain insights into community awareness, knowledge, attitudes, concerns, and priorities related to the Program.
- Gain insights and advice to shape further research and inform recommendations in the 2021 Plan.

Community-Based Organizations

COMMUNITY CONNECTIONS CBOS

From the beginning, the project planned to engage with priority communities using SPU's Community Connections Program contracted CBO partners. The Program contributed funding for Community Connections for three years starting in 2018, concluding its participation at the end of 2020. Table 2-3 provides an overview of each of the three community-based organizations.

Table 2-3 Community-based organizations

Partner CBO	Description
Chinese Information Service Center (CISC)	CISC helps immigrants throughout King County achieve success in their new community by providing information, referral, advocacy, social, and support services. Supporting immigrants from Eastern Europe, Latin America, Africa, and other parts of Asia. Services include early childhood education, youth development, family support, cultural navigator, senior and disabled adult services, and health care access programs. CISC provides these services at four office locations in Seattle, Bellevue, Kent, and Redmond and numerous outreach sites such as community and senior centers.
Environmental Coalition of South Seattle (ECOSS)	ECOSS educates and empowers businesses and diverse communities to implement environmentally sustainable practices. International staff speak more than a dozen languages and work with Asian, Southeast Asian, Pacific Islander, African, and Latinx communities. Program areas are environmental equity, resource conservation, and stormwater solutions. The New Arrivals Program bridges knowledge and cultural gaps that refugees and immigrants face, helping build environmental literacy and leadership through environmental education and experiences.
Horn of Africa Services (HOAS)	HOAS is a nonprofit that serves the East African immigrant and refugee community in Seattle. HOAS serves individuals and families from Djibouti, Eritrea, Ethiopia, Sudan, Somalia, and neighboring countries that are living in the Greater Seattle area. Services include social services, educational assistance, youth programs, and economic empowerment to address the needs of the community. Core programs at HOAS include case management for individuals and families, youth programming for high school students, and after-school tutoring for East African students.

OTHER CBOS

In consideration of the extra burdens on community-based organizations from the impacts of COVID and heightened racial unrest present in the summer of 2020, we decided not to pursue engaging additional CBOs during the research phase of the project.

Approach

PLANNING

The project team's main objective during the planning process was to co-design and implement two to four staff focus groups with each CBO to gain insights into community awareness, attitudes, knowledge, and behaviors related to hazardous materials. The Program project manager coordinated independently with each CBO to co-create a tailored approach that would garner the best insights about their unique communities within the constraints of the pandemic and available time and budget.

The project team prepared a focus group moderator guide designed to gather desired community insights from CBOs. We reviewed the moderator's guide with each CBO staff liaison, invited feedback, gathered community-specific guidance, and made modifications accordingly.

RECRUITMENT

Each CBO was responsible for recruiting focus group participants from their staff members and, where feasible and safe, community members. The project team provided the moderator's guide and translated project materials from the Program's website to support CBO recruitment efforts. While CBOs sought participants who were able and willing to participate primarily in English, they grouped them according to language and culture where feasible.

FOCUS GROUPS

In September 2020, we conducted ten focus groups with a total of 49 participants, all via video conference due to constraints on in-person meetings during the pandemic. The focus groups were moderated by Tere Carral of Bridge Latino, a subconsultant to Cascadia Consulting Group (Cascadia)— the primary consultant supporting the 2021 Plan project. Alyssa Rodriguez of Cascadia provided moderation and notetaking support. The focus groups were moderated in English, with real-time translation support provided by CBO staff member participants as needed.

We used the same moderator's guide for all ten focus groups. The moderator's guide and detailed notes are maintained in the 2021 Plan project files.

We asked focus group participants about:

- Community awareness and knowledge of hazardous materials used in the home and at work, and their potential harms to people and the environment.
- Community awareness, knowledge, and use of the Program and its services.
- Community behaviors related to hazardous materials used in the home and at work, including purchasing habits, cleaning, storage, and disposal.
- Community awareness, knowledge, and behaviors related to the use of safer alternatives.

After the conclusion of each focus group, each CBO liaison given the detailed comments from their respective groups for review and correction.

Safety Considerations

Although the project team moderated all focus groups via video conference, HOAS determined that hosting staff and community members in their offices for the video conference would provide the best experience for them. To ensure the safety of all participants, the Program supplied our HOAS liaison with the latest Public Health guidance for convenings during the COVID-19 pandemic. HOAS then included a safety plan in their proposal, which Public Health reviewed.

ADDITIONAL CBO-LED ACTIVITIES

Although the focus groups were mostly comprised of CBO staff members, two CBOs independently conducted additional convenings specifically with community members.

- After completion of the focus groups, CISC conducted two community meetings with a total of 22 participants and 37 one-on-one interviews with community members. CISC used the focus group moderator's guide as a basis for the discussion in these convenings.
- To aid in recruitment of focus group participants, HOAS conducted four in-language outreach and discussion sessions with a total of 20 community members, some of whom also participated in the subsequent focus groups.

The CBOs conducted these sessions in language, using the English language moderator's guide provided by the project team, augmented by translated materials provided by the Program.

Participation Summary

Focus groups were mostly comprised of staff members from the CBOs, except for HOAS whose focus groups contained a mixture of staff members and community members. All CBO staff and community participants were compensated for their time. Although focus groups were moderated in English, additional community outreach and engagement were moderated in language by the CBOs. Table 2-4 summarizes focus group participation by CBO.

Table 2-4 CBO focus group participation summary

CBO	Participant Primary Languages	Events	Participant Type	Participants
CISC	Chinese, Vietnamese, Spanish, Russian	• Four focus groups led by project team	Staff	22
		• Two community meetings led by CISC	Community	22
		• Interviews led by CISC	Community	37
ECOSS	Vietnamese, Spanish	• Two focus groups led by project team	Staff	7
HOAS	Afaan Oromo, Amharic, Somali, Tigrigna	• Community member outreach and discussion led by HOAS	Community	20
		• Four focus groups led by project team	Mix	20
Total				128

Key Findings and Potential Impacts to the 2021 Plan

COMMON FINDINGS ACROSS ALL CBOS

Awareness

- **Awareness of hazardous waste and the Hazardous Waste Management program is low.**
 - There is general awareness that some materials are harmful to human health and the environment. However, there is not a deep understanding of specifically which products are dangerous.
 - There is generally low awareness of the Hazardous Waste Management Program. This is especially true among respondents that were not part of the CBO staff.

- **Awareness and use of collection services is low.**
 - Use of collection sites among participants was very low, even among CBO staff members who had a greater awareness of hazardous waste compared to the general public.
 - Many don't differentiate between different government agencies/departments, especially for waste services.
 - Respondents were confused as to why other waste (recycling, composting, garbage) is conveniently picked up at their homes, while hazardous waste needs to be taken to a specific location.
 - Barriers to using collection sites include inconvenient hours for working people, time/energy constraints, need for a vehicle, and low accessibility for people requiring physical accommodations.
- **Customers assume the government is regulating hazardous products.**
 - Respondents believe that the root problem is that hazardous materials are in the market in the first place.
 - Participants expressed confusion as to why products can be sold if they are hazardous.

Culture and Lifestyle

- **There is broad use of vinegar and baking soda. However, other safer alternative cleaners are perceived to be inaccessible and ineffective.**
 - Respondents reported a broad use of baking soda and vinegar, especially by (more knowledgeable) CBO staff members, mainly to offer a safer environment for the family.
 - Participants perceived safer alternative products to be more expensive, less effective, and less available in many of the stores used by their community.
 - Safer alternatives are more likely to be used if:
 - They are perceived as effective.
 - There are clear instructions on how to use them (example: how much vinegar to mix with baking soda).
 - There are opportunities to sample the products.
 - In all communities, the use of bleach is very prevalent.
- **Word-of-mouth and CBO outreach is a powerful outreach tool.**
 - Word-of-mouth and CBO outreach is very effective with close knit communities with language barriers that rely on one another for trusted information.
- **For Hispanic respondents, there are deep cultural habits that some respondents have learned from their country of origin and that remain an emotional attachment to their roots. (For example, Hispanics the use of bleach or Fabuloso.)**

Motivators and Barriers

- **Language is a significant barrier.**
 - Language barriers make it difficult for communities to:
 - Follow and read warning labels.
 - Learn about safer products and practices.
 - Read materials regarding hazardous waste.
- **Family's and children's health are key concerns and drivers.**
 - Participants expressed concern about the health risks of chemicals in the home, especially for children and the elderly.
 - Protecting family health was highlighted as the best reason to try safer alternative products.
- **Environmental protection is a key concern.**
 - Participants expressed concern about detrimental environmental impacts and climate change.
 - Participants wanted to know the impacts of hazardous materials not being disposed of properly.
- **Safety in work settings is a key concern.**
 - Communities are aware of additional exposure risks at work, but they must work anyway and don't have control over what products are used.
 - Respondents believe that employers do not offer training or education about how to safely handle these dangerous materials. Jobs include: janitorial, cleaning, gardening, restaurants, hotels, hospitals, nail salons, and dry cleaning.
- **Multifamily residents lack enough information about how to handle waste.**
 - Many respondents live in multifamily buildings and sometimes there is no information about how to handle waste.

CBO-SPECIFIC HIGHLIGHTS

Chinese Information Service Center (CISC)

- Awareness of the Hazardous Waste Management Program is low amongst community members.
- The rules of separating waste are somewhat followed, and the idea of also separating hazardous waste is appealing.
- Respondents mentioned that they want household cleaning products that are reliable, effective, and convenient.
- Respondents mentioned that the reason why they do not use the disposal services is due to a lack of awareness; they also mentioned that even when they are aware, they would like the services to be convenient and that having to drive somewhere to drop off hazardous waste is not convenient, easy, or practical for them.

- Respondents from Hong Kong mentioned that their community makes a dish called “Hot Pot” and they use disposable gas canisters and generally the used canisters end up in the garbage after use.
- Respondents said that they are willing to use safer alternatives when the products are as effective. Also, they believe that their families’ health is the best reason to try different products.
- Some of the common jobs mentioned in the sessions include: janitors, hospitality workers, restaurant workers, IT, spa, nail salons, housekeeping, childcare, dry cleaners.
 - Some respondents mentioned that people that work in nail salons are in contact with very hazardous materials (chemicals and the filings of fake nails) that can produce cancer. A couple of respondents know of cases of birth defects from people working at nail salons.

Environmental Coalition of South Seattle (ECOSS)

- The perception of ECOSS staff members is that community members are not aware of the Hazardous Waste Management Program.
- There was conversation about the hazards of plastics and especially microplastics and its effects in the oceans.
- There is no knowledge currently on how to dispose of hazardous materials. Currently, used batteries go in the trash and leftover hazardous products (e.g., bleach) get dumped either in the toilet or sink.
- Respondents mentioned that receiving the green cleaning kits has been very useful and that they wish the kits were more widely distributed.
- Within some immigrant communities, but especially in the Hispanic community, the smell of bleach is viewed positively and causes pride to the family - “if it smells like bleach, it is clean.”
- In the Hispanic community, there are beloved products that have been used for generations that have a deep emotional connection and reminds them of home and family (e.g., Fabuloso).
- In refugee camps, they used camphor to clean, and usually refugee communities living here do not have a strong attachment to that product.
- Respondents believe that people in their communities will buy products that seem familiar to them, and sometimes this will have a stronger value than price.
- There is an economic benefit as well for the business to purchase sometimes the cheapest product which could also be the most dangerous product for their employees.
- Even when the CBO staff respondents were very aware of the program and have worked to provide outreach for the program, not one of the respondents has used the collection services before.

Horn of Africa Services (HOAS)

- Awareness of the Hazardous Waste Management program is low among community members. Staff members are more aware as they have worked for the program.
- Participants mentioned that hazardous products can be created by chemical reactions between products. They also mentioned that the odors/perfume can also be hazardous.
- Respondents mentioned that they learn how to handle products from others in the community or from their jobs, but the information is very limited and might not be relevant to their home needs.
- Most respondents live in multi-generational households where the grandparents and grandchildren live together. Usually, the grandparents take care of the household and children during the days while the parents go to work. In addition, respondents mentioned that members of these communities have many children (mentioned six or seven in average), so child safety is very important.
- There is high reverence for the elder population.
- Somali and Ethiopian communities are very close; people in the community usually learn from others in the same community about which products to use and how to create a life here, especially when they are newly immigrants. Word of mouth is one of the most powerful methods to do outreach.
- Respondents understand that the price of the product sometimes reflects the quality of the product, so cheaper cleaning products might not be as safe.
- Respondents believe that community members in certain jobs (for example, janitorial) are exposed to harmful chemicals, but they do not have control over the products that they are using and sometimes are not aware of the dangers of using these harsher chemicals for an extended period of time. There is a perception that there is not good education on these aspects by employers.
- Many respondents live in multi-family buildings and mentioned that there is a lack of resources and understanding on how to manage waste.

CISC Focus Group Discussion Summary

This summary highlights feedback garnered from four staff focus groups, two community meetings, and 37 one-on-one interviews with community members by CISC. It presents the summarized feedback in three segments:

- Hazardous Material Knowledge and Awareness
- Behaviors
- Improvement Recommendations

The moderator's guide and detailed notes from these sessions are maintained in the 2021 Plan project files.

Hazardous Waste Knowledge and Awareness

HAZARDOUS MATERIALS: WHAT IT MEANS TO YOU

Participants had a good understanding that hazardous materials produce exposure to chemicals to both people and the environment. Participants mentioned that hazardous materials include commonly used household products. They also understood that the chemicals within those products are what makes them hazardous.

PRODUCT IMAGES

When participants were shown pictures of hazardous materials, they were surprised by several, leading us to believe that they had a limited understanding of which products are hazardous and which ones are not. Our discussion guide included questions related to batteries, fluorescent or halogen light bulbs, charcoal, gardening products (fertilizers, fungicides), and cold packs.

WARNING SIGNS ON PACKAGING

Some participants had seen warning signs on packaging, but some had not. There is still a need to educate the public on the importance of reading labels and warning signs. Language is a barrier for reading labels and usage instructions of various household products.

AWARENESS OF HAZARDOUS WASTE MANAGEMENT PROGRAM

Among focus group participants, there was high awareness of the Hazardous Waste Management Program, mainly due to their participation in previous Program outreach and on-site trainings.

Among community members, the awareness of the Hazardous Waste Management Program is lower. The rules for separating waste are somewhat followed, and the idea of also separating hazardous waste appealed to community members.

AWARENESS OF HAZARDOUS PRODUCTS

There was very low awareness among community participants that everyday household products could be hazardous to our health and the environment.

Language is a barrier for reading labels and understanding usage instructions and warning signs. Respondents recommended using pictures in labels to better communicate with the public.

Behaviors

CLEANING

Participants mentioned that they want household cleaning products that are reliable, effective, and convenient. Participants use various products to clean their home, including Lysol, Bleach, Clorox, 409, and wipes.

The use of vinegar and baking soda to clean is widespread among participants (both CISC staff and community members). Some mentioned that they use these safe cleaning alternatives because of allergies to harsher products. However, there was discussion about whether vinegar and baking soda worked as well as harsher products and the belief that sometimes the use of stronger products is necessary when the job at hand demands it.

Participants noted that, during the COVID-19 pandemic, more cleaning is being done around the house, with harsher products, to prevent the spread of the virus.

Participants said that they are willing to use safer alternatives if the products are equally effective. Also, they believe that their families' health is the best reason to try safer alternatives.

STORAGE

Participants indicated that there are three places in the house where household products are commonly stored: under the sink, in the garage (if available), and in the bathroom. Products that are mostly used in the bathroom are usually stored there. Harsher products, including those used in the yard, are stored in the garage (or a shed). General cleaning products are typically stored under the sink.

Participants knew about keeping hazardous products away from children.

VEHICLE HABITS

Most participants indicated that they own and/or operate a car. Most participants do not change their car's oil and filters at home, but instead use a shop or garage to perform this service. A few participants said that they know people who change their car's oil and filter at home, but that they did not know how they dispose of the oil. One participant that changes her car's oil at home said that she puts the old oil in the trash. One participant mentioned that, at her dealership, they usually hand her the old filter to prove that it was changed. She usually throws the old filter in the trash.

Among this community, there is very little knowledge of where to dispose old oil. Some mentioned that car shops take the old oil, but the majority did not know.

COMMON JOBS

Some common jobs mentioned in the sessions included: janitors, hospitality workers, restaurant workers, technology, spas and nail salons, housekeeping, childcare, and dry cleaners.

Participants said that workers are somewhat aware that they use hazardous products at work but said that there is no alternative. We discussed the need for educating small businesses and offering trainings for their employees.

Some participants mentioned that people that work in nail salons are in contact with very hazardous materials (chemicals and the filings of fake nails) that can produce cancer. A couple of participants knew of cases of birth defects from people working at nail salons.

A participant also mentioned a case of a worker at a dry cleaner that got cancer and is convinced it is due to the chemicals used in his work.

DISPOSAL

In general, awareness of the Program disposal services is very low. Participants presumed that small businesses have better awareness of the disposal services than residential users.

When disposing of hazardous home products, such as batteries, participants said that the community often puts them in the garbage. They believe that pickup management is the same for all wastes. One participant said, "If we are paying for someone to come and pickup our waste, they should be able to also pick up the hazardous waste."

Participants mentioned that the reason why they do not use disposal services is due to a lack of awareness. They also mentioned that even, when they are aware, they

would like the services to be more convenient and that having to drive somewhere to drop off hazardous waste is not convenient, easy, or practical for them.

Participants from Hong Kong mentioned that their community makes a dish called “Hot Pot” using disposable gas canisters and that the used canisters are generally disposed of in the garbage after use.

Improvement Recommendations

Generally, participants mentioned that it is important to make information available in different languages, including usage and disposal instructions for hazardous materials.

Consider using pictures/infographics for communications when translation is not possible or available. Also, use pictures of commonly used materials in every community (e.g., small gas canisters for the Hong Kong community).

Using mailers or ethnic media could be good choices to reach out to these communities along with focused outreach using partner CBOs.

There was consensus among participants that collection services are not being used because they are not convenient or easy to use. Having people hop in their cars to go to a place to dispose of their hazardous waste is time consuming and inconvenient. Participants shared a few ideas about how to create a service that would be more useful for them. They recommended giving bins to residents to keep their hazardous waste in and then have them collected the same way that their other waste is collected.

We also heard that, for increased participation at drop-off collection sites and services, either incentives or fines for improperly handling hazardous waste at home would be necessary.

A lack of a car is seen as a barrier to using collection services. If a person does not have a car, then they must rely on others, such as kids or grandkids, to be able to use the service.

Finally, participants recommended that the Program form relationships with other smaller CBOs, such as the Ukrainian Community Center.

Conclusion

There is good use of safer cleaning products. There is wide usage of both vinegar and baking soda.

Participants are very aware of the dangers of hazardous materials to children and the importance of keeping them away from their children.

Consider offering training to common jobs that have increased exposure to hazardous materials, such as nail salons and dry cleaning services.

Awareness of collection services is very low, and current services are not convenient or equitable in that people who do not own a car (e.g., seniors) are unable to access them. Consider re-thinking collection service strategies and logistics.

ECOSS Focus Group Discussion Summary

This summary highlights feedback garnered from two staff focus groups with ECOSS. It presents the summarized feedback in three segments:

- Hazardous Material Knowledge and Awareness
- Behaviors
- Improvement Recommendations

The moderator's guide and detailed notes from these sessions are maintained in the 2021 Plan project files.

Hazardous Materials: What It Means to You

Participants gave an accurate explanation of what is hazardous waste, even giving examples such as batteries, chemicals, and used paint.

Participants understood that hazardous materials can damage the health of people and the environment. There was conversation about the hazards of plastics, especially microplastics, and their effects on the oceans.

PRODUCT IMAGES

Although participants were very aware of the Hazardous Waste Management Program, participants expressed surprise about some products that are hazardous and some that are not. Examples of surprising hazardous materials included cold packs, lice shampoo, hair dye, and hair lice treatment.

WARNING SIGNS ON PACKAGING

Participants seemed familiar with the warning signs on product labels and very aware of the dangers of the products when they contain a label with the word "poison" or "danger."

AWARENESS OF HAZARDOUS WASTE MANAGEMENT PROGRAM

All participants were aware of the Hazardous Waste Management Program. They have learned of the Program through work with ECOSSE (either directly or through other government departments) or through flyers or other materials sent to their homes.

The perception among participants was that the community is not very aware of the Hazardous Waste Management Program. They believe that there is more work to be done to create awareness within the community.

AWARENESS OF HAZARDOUS PRODUCTS

Participants believed that the community knows very little about hazardous products. They indicated that the community receives only the information that they are getting through ECOSSE outreach and no other information. Seniors usually do not speak English and might have a problem reading materials.

Participants indicated that there is low knowledge within the community about how to dispose of hazardous materials. Used batteries are disposed of in the garbage and leftover hazardous products such as bleach are either dumped in the toilet or sink.

Participants perceived that businesses might be doing better at handling and disposing of hazardous materials due to their desire to comply with regulations.

Behaviors

CLEANING

Participants mentioned that they use a variety of products to clean their homes. There is wide usage of vinegar and baking soda among participants, but there is also wide usage of bleach and other cleaning products.

Participants mentioned that receiving the green cleaning kits has been very useful and that they wish the kits were more widely distributed.

Within some immigrant communities, especially in the Hispanic community, the smell of bleach indicates that the house is clean and is a matter of pride for the family.

Some products in the Hispanic community are used because of cultural affection, learned sometimes over generations. An example of such a product is Fabuloso.

In refugee camps, camphor is often used to keep things smelling fresh, although refugee communities living here do not have a strong attachment to that product.

Participants believed that people in their communities will buy products that seem familiar to them, and sometimes they value this over price.

STORAGE

Participants mentioned that there are two areas in the house where cleaning products are commonly stored: under the kitchen sink and in the bathroom. Keeping products under sinks provides easy access to frequently used products.

Participants mentioned that common sense dictates that one should keep products away from both children and food.

VEHICLE HABITS

Most participants indicated that they own a car. Those that own a car indicated that they take them to a garage or shop to have the oil changed. Participants mentioned that refugees are usually not very familiar with car technology, so they take their cars to a garage or shop to have the oil changed.

COMMON JOBS

Some of the common jobs mentioned in the sessions included: housekeeping, restaurant workers, landscaping, painters, construction, and mechanics.

Participants indicated that, even when workers are aware that they are using hazardous products, they do not have a choice because they need their jobs to support their families. Additionally, workers do not have a say in which products to purchase and use. Furthermore, language barriers sometimes make it difficult for workers to read safety and usage instructions of the products that they are required to use for their jobs.

There is also an economic benefit for businesses to purchase the cheapest product, which could also be the most dangerous product for their employees.

DISPOSAL

Awareness of the Program's collection services is very low. Even among participants who were very aware of the Program itself and who have worked to provide outreach on behalf of the Program, none of the participants had used Program collection services at the time of our research.

Participants mentioned that collection services are very inconvenient for both them and the community, and that this makes it almost impossible for communities to use this service. It takes time and money to take their hazardous waste to a collection facility, and it is preferable to just throw products such as batteries or small leftover products in the garbage.

Improvement Recommendations

Participants mentioned that communities of color are suffering, so creating an incentive program to safely dispose of hazardous materials could be a good option.

Participants mentioned the importance of having a robust policy to discourage the public availability of dangerous products. Another idea shared was to create fines for corporations who sell and distribute hazardous products and use that money to fund community outreach and education programs.

There was a long discussion about making collection locations more convenient, such as placing collection bins at grocery stores and providing bins for consumers to gather hazardous waste. This program could also be paid for by the producers and sellers of the products.

It is important to broaden outreach and education for minority communities and make sure that there is language and cultural support for all the diverse groups in King County.

Conclusion

There is good use of safer cleaning products. There is wide usage of both vinegar and baking soda.

Participants were very aware about the dangers of hazardous materials around children and know to keep hazardous products away from their children.

Consider offering training to individuals working common jobs that have increased exposure to hazardous materials, such as cleaning businesses, construction, and landscapers.

Awareness of collection services is very low, and the current collection service is not convenient or equitable. Consider re-thinking collection service strategies and logistics.

HOAS Focus Group Discussion Summary

This summary highlights feedback garnered from four focus groups with staff community members by HOAS. It presents the summarized feedback in three segments:

- Hazardous Material Knowledge and Awareness
- Behaviors
- Improvement Recommendations

The moderator's guide and detailed notes from these sessions are maintained in the 2021 Plan project files.

Hazardous Materials: What It Means to You

Participants described hazardous waste as something dangerous or harmful for humans and the environment. Other explanations of hazardous waste included poisons, dangerous materials, and medical waste. Some participants mentioned that they believe other materials are hazardous like frying oil or contaminated water.

Others mentioned that hazardous materials are pollution that have a negative impact on the environment.

Participants mentioned that hazardous products can be created by chemical reactions between products. They also mentioned that the odors/perfume can also be hazardous.

PRODUCT IMAGES

There was confusion among participants about whether the following products are hazardous: fertilizers, hand sanitizers, aerosols, and cold packs.

WARNING SIGNS ON PACKAGING

Some participants have seen warning signs on labels, and some have not. Some participants mentioned seeing warning signs about side effects of some of the products and a warning sign to keep the products away from children.

AWARENESS OF HAZARDOUS WASTE MANAGEMENT PROGRAM

HOAS staff participants were generally aware of the Hazardous Waste Management Program due to the outreach they have done on behalf of the Program. Community

members were generally not aware of the Program. There were a few exceptions, such as someone that works for a childcare provider.

AWARENESS OF HAZARDOUS PRODUCTS

Participants believed that the community's general knowledge regarding hazardous products, especially ones used around their homes, and how to handle them is very low.

Participants mentioned that they learn how to handle products from others in the community or from their jobs, but the information is very limited and might not be relevant to their home needs.

Most participants live in multi-generational households where the grandparents and grandchildren live together. Usually, the grandparents take care of the household and children during the days while the parents go to work. Participants also mentioned that members of these communities have many children (6 or 7 on average), so child safety is very important. There is also high reverence in the community to the elder population.

Behaviors

CLEANING

Participants mentioned using bleach and other cleaning products when cleaning their homes. Besides bleach, which is a widely used product, there is not a strong attachment to a particular product.

In addition to harsher chemicals, participants indicated that there is wide usage of vinegar and baking soda to clean households. Usually, knowledge to use these safer alternatives comes from word of mouth or internet searches.

The Somali and Ethiopian communities are very close. Usually, people in the community learn from others in the same community about which products to use and how to create a life here, especially when they are newly immigrants.

Participants mentioned that providing information at school or other community places is a good way to reach the community. Word of mouth is a very effective method to increase outreach for these communities.

Participants indicated that product effectiveness and safety are more important than price, if the price is not cost-prohibitive for their personal budget.

Participants appeared to understand that a product's price sometimes reflects its quality, so cheaper cleaning products might not be as safe.

Participants mentioned that language barriers both in outreach materials and product labels are a barrier that prevents them from using and storing products safely.

Participants believed that cheaper is not better. They mentioned that cheaper cleaning products are usually more dangerous.

STORAGE

Participants mentioned that the most common places for storing cleaning products are under the kitchen sink and sometimes in the bathroom. More dangerous hazardous products are kept in the garage or outside in a shed.

Some of the reasons participants gave for why they keep products where they do is to keep them away from children and for convenience.

VEHICLE HABITS

Most participants indicated that they own a car and that they usually take their car to a shop for oil changes. In the case of the community, participants believed that some community members change their car's oil at home, but they do not know what they do with the used oil. One participant mentioned a case where the car owner took the used oil to a car shop.

COMMON JOBS

Some of the common jobs mentioned by participants for these communities included: drivers (e.g., Uber and Lyft), janitorial, housekeeping, hospital workers, security guards, airport workers, and childcare.

Participants believed that community members in certain jobs (e.g., janitorial) are exposed to harmful chemicals, but do not have control over the products that they are using and sometimes are not aware of the dangers of using these harsher chemicals for extended periods of time. Participants perceived that there is not good education on these aspects by employers.

DISPOSAL

Participants were not aware of the disposal services offered by the Program, and they believed that community members are not aware of these services either.

Participants indicated that they have seen the recycling and composting guide and that they usually have it in a visible place in their households.

Participants believed that businesses are more compliant than residents on correct disposal of hazardous materials to keep their licenses and status with the County and State.

Participants that live or have lived in multifamily buildings mentioned that there is little compliance already with recycling and composting at these locations and mentioned a need for more education about separating hazardous waste and waste in general.

Participants mentioned that collection services are especially difficult for older community members who might not drive and are not as physically capable of carrying products back and forth.

Improvement Recommendations

Participants suggested giving containers to residents to dispose of their hazardous materials and having existing waste hauler trucks pick it up from people's homes. Participants mentioned that the Program should make this service as easy and painless as possible.

Because of the high reverence in these communities for older generations, it would be very impactful to reach these older populations. However, there are challenges such as language and reading abilities.

Participants also mentioned that offering incentives to safely dispose of hazardous materials is a good option.

Participants mentioned that eliminating hazardous products from the market through policy efforts is a better option than requiring consumers to deal with the waste of these products. Also, they suggested working through policy to make labels more visible and use symbols so that elders and community members that do not speak English understand the warning signs.

Participants also suggested outreach to multifamily residents, as many members of these communities live in multifamily buildings.

Conclusion

When reaching the Somali and Ethiopian communities, word-of-mouth is the best option. This is a very close community that trusts each other greatly. Using symbols on warning labels could be a good solution, as language is the biggest barrier to communicate with these communities.

The safety of family and children is very important for this community and is a driver for some storage and cleaning habits. This could also become a motivator to

change other habits, but more outreach is needed to illustrate the dangers that some products can have on family health.

There is wide use of vinegar and baking soda to clean in homes, so efforts to educate consumers on using safer products appear to be working with these communities. However, there is also wide use of harsher chemicals like bleach, Lysol, and Drano.

Storage of hazardous materials was very consistent across the four focus groups. Participants usually store their cleaning products under the sink or in the bathroom, and usually store stronger chemicals either outside in a shed or in the garage (if available). Child safety is very important as these communities often have a larger number of children at home (6 or 7 on average).

The Program's current collection services are not effective for these communities. None of the 20 participants had ever used collection services for hazardous waste. They indicated that it is inconvenient to drive their hazardous waste to a specific location and that they do not have the time or resources to do this.

Small businesses that work with harsher chemicals should provide more education to their workers about the risks of working with harsh chemicals and ways to be safe.



2021 Hazardous Waste Management Plan
November 2021 Final



APPENDIX G. Documentation for the Department of Ecology

2021 Hazardous Waste Management Plan

Hazardous Waste Management Program in King County

APPROVED AND ADOPTED BY
KING COUNTY BOARD OF HEALTH
NOVEMBER 2021

Prepared by
Hazardous Waste Management Program in King County
Cascadia Consulting Group, Inc.

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1 Required Content



This section documents content required by the Department of Ecology (Ecology) that is not presented elsewhere in the 2021 Hazardous Waste Management Plan.

1.1 Authority for the Program

Legal authority for the Hazardous Waste Management Program in King County (the Program) is based on Washington State statute and King County Board of Health Code. Federal law exempts household hazardous waste (HHW) and small quantity generators (SQGs) from requirements of federal regulation.

[Chapter 70A.300 RCW Hazardous Waste Management](#) directs local governments to prepare local hazardous waste management plans and describes required plan contents. [Chapter 70.05.060 RCW](#) describes the powers and duties of local boards of health, which include enacting and enforcing local rules to protect public health as well as establishing fees for services provided to protect public health.

[King County Code 10.24.040](#) directed King County Solid Waste Division to develop a hazardous waste management plan for the unincorporated portions of King County. The code allowed for the possibility of interlocal agreements between King County and the cities in King County to address moderate risk waste (MRW). King County Solid Waste Division has [negotiated interlocal agreements](#) with all but two of the cities in King County that delegate planning for their MRW to King County through 2040.¹ These cities are listed in Table 1-1. The City of Milton is served by Pierce County. The City of Seattle participates in planning for MRW by being a legal partner agency of the Program. As part of Seattle Public Utilities' partnership with the Program, the City of Seattle has a biannual contract with Public Health—Seattle & King County (available on request) that documents its operational roles, responsibilities, and procedures for MRW services, facilities staffing, and funding.²

¹ See [King County Solid Waste Interlocal Agreements](#). All agreements that delegate the planning for MRW to King County used identical standard language.

² The current contract runs through December 2022.

Table 1-1 Cities with an interlocal agreement with King County Solid Waste Division

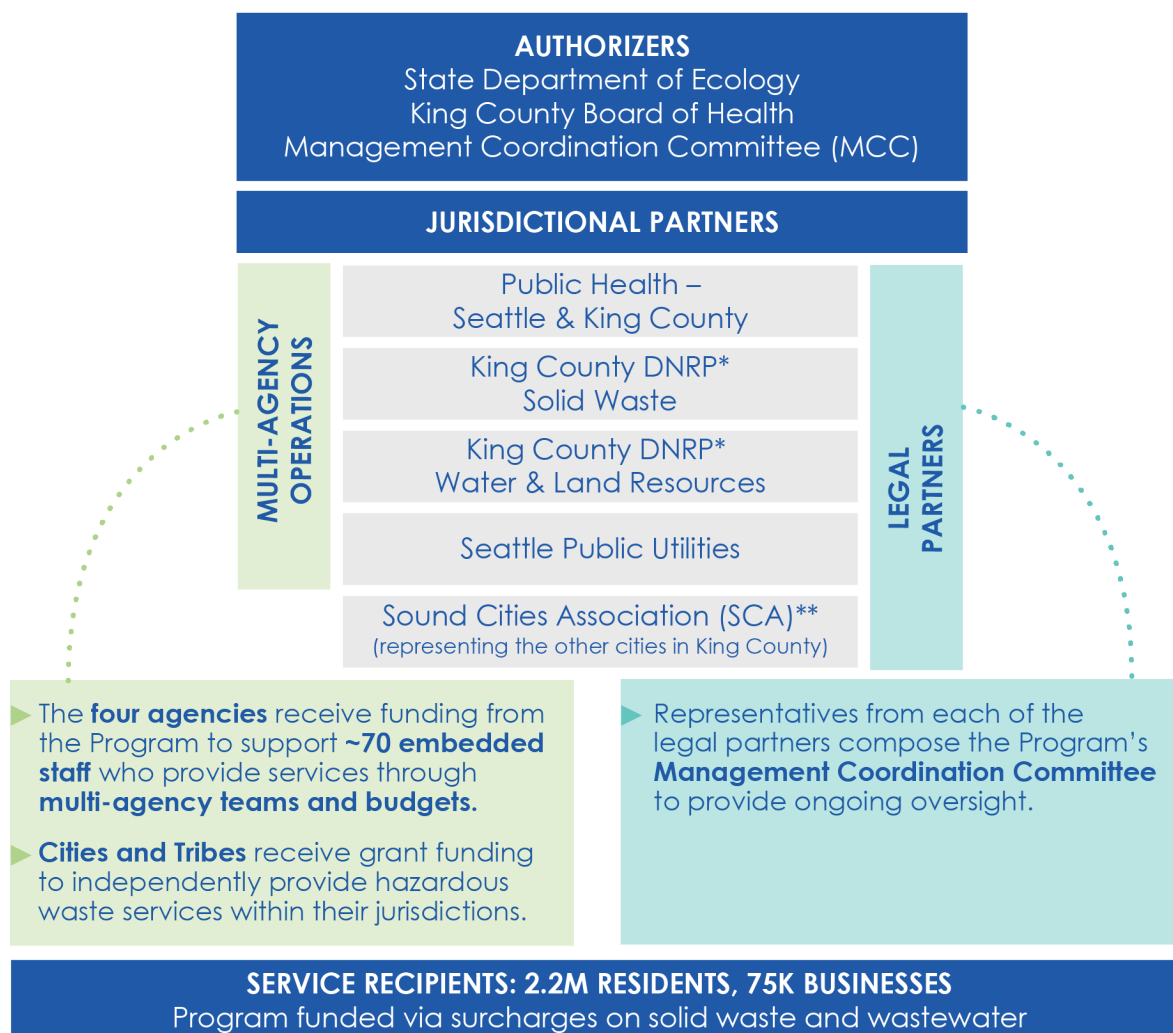
• Algona	• Federal Way	• North Bend
• Auburn	• Hunts Point	• Pacific
• Beaux Arts Village	• Issaquah	• Redmond
• Bellevue	• Kenmore	• Renton
• Black Diamond	• Kent	• Sammamish
• Bothell	• Kirkland	• SeaTac
• Burien	• Lake Forest Park	• Shoreline
• Carnation	• Maple Valley	• Skykomish
• Clyde Hill	• Medina	• Snoqualmie
• Covington	• Mercer Island	• Tukwila
• Des Moines	• Newcastle	• Woodinville
• Duvall	• Normandy Park	• Yarrow Point
• Enumclaw		

Local authority for the Program rests with the King County Board of Health (Board), which is an intergovernmental body composed of health professionals and elected officials from the King County Council, Seattle City Council, and governments of participating suburban cities. The Board has authority to enact local ordinances, apply civil penalties for violations, and request criminal prosecution if the violator does not comply with civil enforcement actions.

The King County Board of Health provided local authority to the Hazardous Waste Management Program through [*Board of Health Code 11.04 Local Hazardous Waste Program's Management Coordination Committee \(MCC\)*](#). To enable an intergovernmental approach, the code established the MCC, defined its membership, delineated its powers, and assigned it specific duties. Those duties include developing annual budgets and management plans.

The MCC receives support from a Program Director who accepts direction from the MCC and oversees delivery of Program services to the ratepayers and public at large. The Program Administrator coordinates and works with senior staff from the Program Partner agencies and provides general leadership to Program staff.

In addition to the Office of the Program Director, a group of senior staff from each Program Partner agency, known as the Leadership Team, works together to implement the Program (Figure 1-1). The Leadership Team, mirroring the MCC, is composed of senior staff from Seattle Public Utilities, King County Solid Waste Division, King County Water and Land Resources Division, Public Health—Seattle & King County, and some Suburban Cities. The Leadership Team implements the Program by directing staff at each of the Program Partner agencies.

Figure 1-1 Our authorizers and partners

*Department of Natural Resources and Parks

**Jurisdictions in King County originally authorized the Program in 1991.

1.2 Relevant Federal, State, and Local Regulations and Plans

The 2021 Hazardous Waste Management Plan (2021 Plan) adheres to federal, state, and local regulations that govern or affect the management of HHW and SQG hazardous waste. The Hazardous Waste Management Program (Program) considered federal, state, and local ordinances and regulations regarding resource conservation, public health, solid waste, wastewater and stormwater, fire safety, air

pollution control, and health and safety when developing the 2021 Plan. The Program also aligned the 2021 Plan with relevant state and local planning efforts.

Key regulations and plans are summarized below.

Federal Regulations

- The **1976 Resource Conservation and Recovery Act (RCRA)** regulates large generators of hazardous waste and delegates the management of hazardous waste to the states.
- The Environmental Protection Agency's **1995 Universal Waste Rule** (40 CFR Part 273) allows generators of certain hazardous wastes to use alternative regulatory requirements for those wastes in place of the more complex hazardous waste requirements.
- The **1996 Federal Mercury-Containing and Rechargeable Battery Management Act** (Public Law 104-142) provides for uniform labeling of batteries, requires products using rechargeable batteries to allow for their easy removal, streamlines regulation of used nickel-cadmium batteries, and prohibits the sale of mercuric-oxide button cell batteries and other mercury-added batteries.
- The **Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)**, more commonly known as the "Superfund" act, complements RCRA by providing for the cleanup of sites contaminated by hazardous waste.
- The **1986 Superfund Amendments and Reauthorization Act (SARA)** created the Emergency Planning and Community Right-to-Know Act (EPCRA), also known as SARA Title III.
- The **Hazardous Materials Transportation Act** and the **Hazardous Materials Transportation Uniform Safety Act** regulate the transportation of hazardous materials under 49 CFR 172.704.
- The **Toxic Substances Control Act (TSCA)** regulates the manufacture and use of chemicals that pose unreasonable risks to human health or the environment.
- The **Federal Insecticide, Fungicide and Rodenticide Act** regulates the manufacture, labeling, application, storage, and disposal of pesticides.
- The **Clean Water Act** regulates and protects water quality through the National Pollutant Discharge Elimination System (NPDES), a permit program that regulates direct discharges of pollutants to navigable waters. It also regulates discharges through pretreatment standards for publicly owned treatment facilities.
- The **Safe Drinking Water Act** sets maximum contaminant levels for drinking water supplies, including surface and groundwater sources.
- The **Clean Air Act** regulates air pollutant emissions.

- The **Occupational Safety and Health Act** (OSHA) governs employee exposure to hazardous chemicals.

State Regulations and Plans

- **Chapter 70A.300 RCW – Hazardous Waste Management Act** regulates the management of hazardous waste. It directs local government to prepare local hazardous waste management plans; establishes a hierarchy for managing wastes; and regulates the transport, treatment, storage, and disposal of hazardous waste. **Chapter 173-303 WAC – Dangerous Waste Regulations** implements the Hazardous Waste Management Act.
- **Chapter 70A.224 RCW – Used Oil Recycling Act** requires each local hazardous waste management plan to include plans for used oil collection and management, including preventing and addressing oil contaminated with PCBs. Local governments must also submit annual reports to Ecology describing the number of collection sites and amounts of used oil collected from households.
- **Chapter 70A.205 RCW Solid Waste Management—Reduction and Recycling** regulates solid waste handling and disposal. For instance, it requires retailers selling new auto batteries to accept used vehicle batteries for recycling. **Chapter 173-350 WAC – Solid Waste Handling Standards** implements the Solid Waste Management Act, establishes requirements for MRW collection and disposal, and establishes requirements for MRW storage and processing facilities.
- The **Washington State Solid and Hazardous Waste Plan** describes state priorities and direction for managing waste and materials.
- **Chapter 70.05.060 RCW – Powers and Duties of Local Board of Health** gives local boards of health the authority to enact and enforce local rules to protect public health and to establish fees for services provided to protect public health.
- **Chapter 49.17 RCW – Washington Industrial Safety and Health Act** requires that employees receive hazardous substance training and information under “worker-right-to-know” laws.
- **Chapter 70A.305 RCW – Model Toxics Control Act** provides for the identification and cleanup of contaminated sites in Washington.
- **Chapter 70A.500 RCW – Electronic Product Recycling Act** requires a convenient, safe, and environmentally sound system for collecting and transporting covered electronic products.
- **Chapter 70A.430 RCW – Children’s Safe Products Act** regulates certain hazardous chemicals in children’s products.
- **Chapter 70A.515 RCW – Architectural Paint Stewardship Program** requires paint manufacturers to assume responsibility for the collection, recycling, reuse, transportation, and disposal of leftover paint.

- **Chapter 70A.425 RCW Poison Prevention – Labeling and Packaging** provides for special packaging to protect children from household substances.
- **Chapter 70A.420 RCW – Lead-Based Paint** establishes a program to protect the public from lead-based paint hazards.
- **Chapter 70A.415 RCW – Hazardous Substance Information** creates a state office to compile and provide information on hazardous substances in the community.
- **Chapter 70A.230 RCW – Mercury** regulates the sale, labeling, use, and end-of-life management of certain mercury-containing products.
- **Chapter 70A.445 RCW – Recreational Water Vessels—Antifouling Paints** regulates chemical ingredients in these products and encourages the development of safer alternatives.
- Washington’s **International Fire Code (IFC)** mandates specific requirements for the storage and use of hazardous materials.

Local Regulations and Plans

- **King County Code 10.24.040 – Hazardous Waste Management Plan**, directed King County Solid Waste Division to develop a hazardous waste management plan for the unincorporated portions of King County.
- **King County Board of Health Code Title 10 – Solid Waste Handling** makes Public Health responsible for issuing operating permits and inspecting solid waste and moderate risk waste facilities and collection events. Public health is also responsible for permitting and inspecting on-site sewage systems.
- **King County Board of Health Code 11.04** provided local authority to the Program and the Hazardous Waste Management Coordination Committee (MCC).
- **Board of Health Code 11.05** established Secure Medicine Return Regulations.
- **King County Resolution 18-07** supported collaborative efforts to improve the health and well-being of King County residents and the environment by reducing exposure to and use of hazardous chemicals and replacing those used in homes and businesses with safer alternatives.
- **Municipal solid waste ordinances, regulations, and collection contracts** prohibit disposal of HHW and SQG wastes into the solid waste stream.
- **Wastewater ordinances and regulations** limit the discharge of hazardous materials into sanitary sewers or surface water drainage systems under their jurisdiction.
 - The King County Wastewater Treatment Division, which manages the sewerage system for seventeen cities and seventeen sewer utilities in

- King County, requires notification and preapproval for any discharge of hazardous waste into its system (**King County Code 28.84.060**).
- Seattle, suburban cities, and other sewer authorities in King County also have ordinances that prohibit or regulate the discharge of hazardous materials into their sanitary sewers.
 - **Municipal stormwater ordinances and regulations** prohibit the discharge of petroleum products and hazardous materials into stormwater or storm drains within their jurisdictions. Some cities also have aquifer protection ordinances that further restrict the use, storage, and disposal of hazardous materials.
 - **Local public health statutes, rules, and regulations** address solid waste and hazardous waste disposal. Cities and fire districts have code requirements mandating the safe handling and use of hazardous materials and have inspection and enforcement roles regarding MRW.
 - **Several local plans and planning efforts relate to hazardous materials:**
 - Solid Waste Management Plans for King County and City of Seattle
 - Stormwater Management Plans for King County and City of Seattle
 - Emergency Management Plans for King County and City of Seattle
 - Climate Action Plans for King County and City of Seattle
 - **Air pollution control standards, laws, and regulations** are administered by the Puget Sound Clean Air Agency (PSCAA), the regional air quality authority.
 - **City fire departments and fire districts** require the safe handling, use, and storage of hazardous materials in their jurisdictions.
 - The [Hazardous Waste Management Program website](#) provides the most current list of products classified as moderate risk waste and accepted at a moderate risk waste facility or event.
 - **Moderate risk waste facility operations plans** that outline what is classified as moderate risk waste and associated handling policies are on file at each moderate risk waste facility in the county and at Public Health—Seattle & King County.

1.3 Enforcement and Compliance Approach

Since its beginning, the Program has used technical assistance, incentives, and collection services to encourage residents and conditionally exempt SQGs to reduce their use of hazardous materials and to properly use, store, and dispose of hazardous wastes. The Program's compliance strategy has been to work with businesses and other SQGs until they comply, and to refer businesses that remain out of compliance to agencies that have enforcement authority. These efforts complement wastewater source control programs by helping to reduce the use of hazardous materials and the quantities of hazardous waste going into municipal wastewater, solid waste streams, and the environment.

The Program promotes waste reduction and regulatory compliance by teaching SQG businesses and other organizations about waste management and disposal and hazardous material use reduction. The Program provides education, information resources, technical assistance, and financial incentives to businesses and other SQGs to help them reduce their use of hazardous materials and properly manage and dispose of hazardous wastes. SQGs can schedule technical assistance visits through the Program's website and by calling the Business Waste Line. Through the statewide EnviroStars program, the Program also provides public recognition for businesses that take steps to reduce their use of toxic and hazardous materials and take other resource conservation actions.

The Program also promotes compliance by investigating hazardous waste complaints and working with enforcement authorities to resolve them. Individuals can call or e-mail the Program with hazardous waste complaints, and the Program will either investigate the complaint or refer it to the appropriate agency for investigation. Many businesses demonstrate a willingness to correct their hazardous waste management practices when given information and adequate options for disposal. However, a small percentage of businesses require enforcement efforts to bring them into compliance.

Table 1-1 documents which agencies we refer the most common types of compliance issues to when enforcement is needed. Public Health—Seattle and King County inspects hazardous waste facilities, including the Program's household hazardous waste sites, for compliance on behalf of Ecology.

Table 1-2 Enforcing agencies for compliance issues

Compliance Issue	Enforcing Agencies
Worker health and safety issues	Washington Labor and Industries, Public Health—Seattle and King County Public Health, U.S. Occupational Health and Safety Administration
Air pollution, odors, or vapors released to outside	Puget Sound Clean Air Agency
Spills or discharges to storm water or storm drains	Ecology, Local Source Control Program, King County Code Enforcement, or local city code enforcement agencies
Improper sewer discharges	King County Industrial Waste Program, Seattle Public Utilities, local sewer districts
Fire, flammable waste, improper storage issues	Local fire departments, King County Code Enforcement, or local city code enforcement agencies
Improper hazardous waste disposal or storage	King County Solid Waste Division, Ecology
Auto recycling issues	Washington State Patrol
Suspected illegal activities	Local law enforcement agencies
Structural or property issues	King County Code Enforcement or local city code enforcement agencies
Water pollution or issues in navigable waters	Ecology, U.S. Coast Guard

1.4 Plan Update Process

Annually, our program will review and adjust the implementation plan through our annual work planning process. Our work plan identifies our activities, budget, staffing, and timelines for implementing the 2021 Plan.

Our Program intends to review the Plan, in consultation with Ecology, at five-year intervals to determine whether we need to formally update the Plan. Changes that may indicate the need for a formal update can include substantial demographic shifts in the populations we serve; changes to our goals; changes in the nature of the hazardous wastes, materials, and products we are attempting to address; and changes in the methods we use to address those wastes, materials, and products. This review process will involve aggregating and reviewing our annual work plans (the implementation plan required by Ecology) and annual reports.

At least every 10 years, our Program will formally update our Hazardous Waste Management Plan (Plan). In updating the Plan, we will consult with an Ecology regional planner and decide whether to proceed with an amendment or a revision.

Based on Ecology’s guidelines for local hazardous waste plans, an amendment is necessary to keep the Plan updated, ensure the permits can be properly issued, and ensure eligibility for state grant funding. A revision is necessary for greater changes, such as when the Plan involves substantial changes affecting other jurisdictions in the planning area.

Our Program intends to use a similar process as we used to update the 2021 Plan for future formal plan updates. We also intend to use the same approval process as we are using now for the 2021 Plan including public input through a variety of mechanisms in the development phase and a public comment period for review of the draft document before submitting to the MCC. After reviewing and incorporating those public comments as appropriate, we would submit the updated Plan to the MCC for its review and approval. After MCC approval, we would submit the document to the Board of Health for its review and approval. After addressing any concerns from the Board of Health, we would submit the document to Ecology for final review and approval.

1.5 Hazardous Waste Inventory

Dangerous Waste Generators

Ecology records (latest data as of December 2020) show that the following numbers of businesses and institutions in King County are registered as hazardous waste generators:

- 189 large-quantity generators
- 241 medium-quantity generators
- 422 small-quantity generators
- 342 businesses and institutions with EPA or State identification numbers but that did not report waste in the most recent year (2019) and are listed as “Not a Generator” or “XQG.”

Hazardous Waste Transporters

Ecology maintains a list of hazardous waste transporters. As of December 2020, that list contained 108 unique offsite handler IDs.

Hazardous Waste Facilities and Zone Designations

According to Ecology's [website](#) as of April 2021, there are six hazardous waste facilities in King County (Table 1-2).

Table 1-3 Hazardous waste processors in King County

Facility Name	Facility Type	City	Facility ID
Emerald Services, Inc.	Used oil processor	Seattle	WAD058367152
Emerald Services, Inc.	Dangerous waste and used oil transfer facility	Seattle	WAD009492877
Marine Vacuum Services	Used oil processor	Seattle	WAD980974521
Clean Harbors Environmental Services	Dangerous waste and used oil transfer facility	Kent	WAH000035842
Clean Earth—Kent	Commercial permitted dangerous waste storage (only TSCA)*	Kent	WAD991281767
Ingenium	Dangerous waste and used oil transfer facility	Kent	WAH000029517

As demonstrated by the existence of hazardous waste facilities within King County, zoning codes permit the processing or handling of hazardous waste. King County Code [Title 21A Zoning](#), Seattle City Code [Title 23 – Land Use Code](#), City of Kent [Title 15 – Zoning](#), and many other individual suburban city codes describe allowable land uses in accordance with Chapter 70A.300.370 RCW.

Remedial Action Sites

Ecology maintains a [list of contaminated sites in King County](#). In April 2021, Ecology listed 4,258 sites, of which 2,079 sites needed further action (Table 1-3).

Table 1-4 Remedial action sites in King County

Site Status	Number of Sites
No Further Action	2,179
Awaiting Cleanup	542
Cleanup Started	1,516
Cleanup Complete—Active O&M/Monitoring	9
Construction Complete-Performance Monitoring	11
Tracked by EPA	1
Total	4,258

1.6 Status on Recommendations from 2010 Plan

Table 1-5 provides the status of the recommendations identified in the 2010 Plan Update.

Table 1-5 Status of recommendations from 2010 Plan

Section	2010 Plan Recommendations	Status
6.1.1-6.1.3 Collection Services	Maintain Household Hazardous Waste (HHW) collection through: – Fixed HHW collection facilities – Mobile HHW collection services – Semi-fixed collection services	Continued operating three fixed moderate risk waste (MRW) collection facilities. The Factoria fixed facility was rebuilt in 2017 with increased capacity to collect hazardous waste. Continued operation of the travelling Wastemobile that serves locations throughout King County. Continued weekly scheduled Wastemobile in Auburn. In 2017, the MCC agreed to co-locate MRW services with the new South King County Recycling and Transfer Station. When the new facility is ready, scheduled for 2024, the Auburn Wastemobile location will be discontinued.
6.1.4 Collection Services	Provide services for the homebound.	Continued providing home collection services for those 65 and older or for disabled people who do not have a mode of transportation.

Section	2010 Plan Recommendations	Status
6.1.5 Collection Services	Provide services for underserved populations.	Began providing pop-up collection services at events reaching underserved populations in partnership with other Program initiatives. Began a re-use program for some materials with nonprofit organizations. Increased promotion of collection services through multilingual education and outreach and increased accessibility to collection sites through universal signage.
6.1.6 Collection Services	Pilot collection of Small Quantity Generator (SGQ) wastes.	Completed pilot for SQG disposal and implemented updated collections policy for SQGs.
6.1.7 Collection Services	Support Suburban Cities collection events.	Continued support through grants and Wastemobile services, and promotional activities.
6.1.8 Collection Services	Collect used motor oil.	Implemented contract for recycling in 2013 and testing of motor oil for PCBs prior to recycling.
6.2 Disposition of Hazardous Waste from Collection Facilities and Services	Properly manage MRW collected by the Program facilities following regulation WAC 173.350 and Washington State Department of Ecology's waste management hierarchy.	Continue to follow proper disposition protocols. Updated practices in accordance with best practices, evolved technology, and upgrades to MRW facilities.

Section	2010 Plan Recommendations	Status
6.3 Product Stewardship	Implement product stewardship/extended producer responsibility in managing hazardous materials: – Pharmaceuticals – Mercury-containing fluorescent lamps and tubes – Other hazardous products	Supported the passage of product stewardship/extended producer responsibility regulations and legislation: – King County Board of Health – Secure Medicine Return 2013. (BOH Code 11.50) (2013) State Legislature (see Table 1-5): – Mercury lights (RCW 70.275) (2010) – Paint stewardship (RCW 70.375) (2019) – Drug Take-Back Program (RCW 69.48) (2018) – Battery Stewardship. (HB2496) (not yet passed, introduced in 2020)
6.3 Product Stewardship	Support legislative efforts to move beyond voluntary programs.	Continued efforts and support of product stewardship/extended producer responsibility initiatives that move from voluntary to legislated solutions involving manufacturers.

Section	2010 Plan Recommendations	Status
7.1 Providing Information	Provide communications and outreach to King County residents and businesses to help people identify hazards, connect them with program services, promote actions for reducing the use of hazardous materials, and manage and dispose of hazardous materials safely. Tactics and outreach channels include: – Program web site – Print materials – Customer service phone lines – Workshops/trainings – Technical assistance	Continued robust communication and outreach program, including: – kingcountyhazwastewa.gov website – Program materials translated into 22 languages other than English and meet accessibility standards for people with disabilities – Customer service phone lines (residential and business) and Garden Hotline – Media including radio shows and phone apps – Paid and earned media to share Program messaging – Workshops, peer training, and in-home visits – Residential and business one-on-one technical assistance
7.2 Business Services	Promote proper handling, storage, and disposal of hazardous waste and reuse of useable materials in businesses. Strategies include: – Industrial Materials Exchange (IMEX) – Voucher incentives and EnviroStars	Continued operation of IMEX. Continued voucher incentives program. Transitioned EnviroStars to a statewide program in 2017. Continued in-person consultations and direct technical assistance.

Section	2010 Plan Recommendations	Status
7.3 Product Alternatives	Provide information about alternatives to hazardous products at home and at work.	Increased focus on alternatives to hazardous products. Examples include: – Introduced the King County Safer Alternatives Resolution to the King County Board of Health (adopted in 2018 as KC Board of Health Resolution No. 18-07) to support our work to prioritize chemicals of concern, identify safer alternatives, and help businesses and residents make safer chemical choices. – Assisted dry cleaners to replace perchloroethylene (PERC) solvent machines with professional wet cleaning equipment. – Assisted auto body shops to switch to using water-based base coats. – Promoted safer alternatives to cleaning products, including how to find products with the EPA Safer Choice logo to help residents and businesses reduce exposure human and environmental exposure to harmful chemicals.

Section	2010 Plan Recommendations	Status
7.4 Priority Materials	Promote less-toxic alternatives and the safe use and storage of priority chemicals, including: – Art products – Pesticides – High-risk solvents	Continued promoting less-toxic alternatives and the safe use and storage of priority materials, including: – Art Chemicals Hazard Products Project (completed in 2016) worked to reduce the use of art materials with hazardous components. – Integrated pest management (IPM) trainings and materials provided specialized information about IPM techniques and safer alternatives to residents, businesses, and local governments to reduce pesticide use and exposure. – Reduction in high-risk solvents by providing technical support and information to businesses, such as dry cleaners, auto body shops, and nail salons.
7.5 Protecting Children and Youth	Focus on reducing children and youth exposure to hazardous materials and products: – Young Children – Healthy Schools	Implemented and completed projects focused on reducing exposure to children and youth: – Worked with parent groups and provided technical assistance visits to childcare facilities on reducing exposures to hazardous materials. Project completed in 2016. – Properly disposed of highly toxic school lab chemicals and trained science teachers in microchemistry to reduce exposure as part of the Healthy Schools Project. Project completed in 2016.

Section	2010 Plan Recommendations	Status
7.6 Protecting Historically Underserved Populations	Incorporate the principle of equity of service into all aspects of planning, communication, and service delivery: – Environmental Justice Network in Action (EJNA) – Local Government House Authority – Healthy Nail Salons – Business outreach	Continued and enhanced incorporation of equity into all aspects of work. Examples include: – Worked with EJNA to develop tools and the capability to work effectively with the many cultural groups in King County. – Adopted a racial equity strategic plan in 2018 and began implementing recommendations in community outreach and education. – Provided outreach, education, and trainings with and through community-based organizations. – Improved IPM practices at housing authority-operated properties by promoting proper use of pesticides and record keeping. – Worked with nail salons to use safer nail products, personal protective equipment, and improved ventilation to reduce hazardous exposures to primarily Vietnamese nail technicians. Project completed in 2016. – Adopted risk-based method developed for extending on-site consultation services, including service gaps, environmental risks, and equity considerations.
7.7 Protecting Environmentally Sensitive Areas	Provide technical assistance in environmentally sensitive areas, including flood zones, areas served by onsite sewage systems, and designated wellhead and groundwater protection areas.	Continued work in environmentally sensitive areas.

Section	2010 Plan Recommendations	Status
8.2 Working Upstream and Producer Responsibility	Focus on “upstream” efforts including product stewardship and extended producer responsibility, cradle-to-cradle approaches, consumer awareness of product contents, ecological intelligence of consumers to drive manufacturer changes, green chemistry, and safer alternatives.	Increased focus on upstream and safer alternative approaches, including: – Advocated for passage and of the Safer Products for Washington Act (Chapter 70.365 RCW) in 2019; supporting ongoing implementation of the Act. – Advocated for amendment of the Toxic Substances Control Act (TSCA) in 2016. – Led the effort for the King County Board of Health to pass the Safer Alternatives Resolution in 2018 (Resolution #18-08). – The Washington State Legislature has also passed numerous chemical policy bills since 2010 (see Table 1-5).
8.3 Producer Responsibility Initiatives in King County	Implement product stewardship/extended producer responsibility in managing hazardous materials, with the goal of creating legislated regulation.	See 6.3. Product Stewardship
9.2 Current Activities	Provide outreach and education that is integrated, systematic, and reflects new research and information.	Continued outreach and education focused on promoting residential and business services through awareness and behavior change campaigns, information resources, financial incentives, recognition, and print and digital materials that are culturally relevant and focused on the community.

Table 1-6 lists bills related to product stewardship or chemical policies and toxic chemicals that the Washington State Legislature passed between 2010 and 2020

Table 1-6 Bills passed by Washington State Legislature 2010–2020

Description of Bill	Year Passed	Chemical	RCW	Product Stewardship or Chemical Policy?
<u>SB 6248</u> : Bans BPA from children’s food and beverage containers (other than metal cans) and all reusable water bottles.	2010	BPA	RCW 70.280	chemical policy
<u>H 1469</u> : Requires all mercury-containing lights collected by product stewardship programs or other collection programs to be recycled, requires producers to participate in a program, prohibits the sale or purchase of bulk mercury.	2010	Mercury	RCW 70.275	product stewardship
<u>S 6131 / H 2507</u> : Prohibits the sale or distribution of mercury-containing novelty products, thermometers, thermostats, or motor vehicle switches.	2012	Mercury	RCW 70.95M .050	chemical policy
<u>SB 6086</u> : Establishes a procurement policy avoiding PCBs.	2014	PCBs	RCW 39.26.280	chemical policy
<u>HB 2545 / SB 6440</u> : Bans the sale of children's products and residential furniture containing toxic flame retardants TDCPP, TCEP, DecaBDE, HBCD, and additive TBBPA.	2016	Toxic flame retardants	RCW 70.240 .035	chemical policy

Description of Bill	Year Passed	Chemical	RCW	Product Stewardship or Chemical Policy?
HB2658 / SB6396 : Prohibits the manufacture and sale of food packaging containing PFAS chemicals and requires the Department of Ecology to conduct an assessment on safer alternatives.	2018	PFAS	RCW 70.95G	chemical policy
HB2793 / SB6413 : Prohibits the manufacture and sale of class B firefighting foam containing PFAS chemicals.	2018	PFAS	RCW 70.75A	chemical policy
HB 1047 : Protects the public's health by creating a system for safe and secure collection and disposal of unwanted medications.	2018	Secure Medicine Return	RCW 69.48	product stewardship
HB 1194 / SB 5135 : Directs the Department of Ecology to identify and take regulatory action on consumer products that are a significant source of chemicals that are a concern for sensitive populations and species. Prioritizes PCBs, PFAS, organohalogen flame retardants, phthalates, and phenolic compounds (BPA, APEs) for initial consideration.	2019	Chemical Prioritization	RCW 70.365	chemical policy

Description of Bill	Year Passed	Chemical	RCW	Product Stewardship or Chemical Policy?
HB 1652 : Concerning paint stewardship. Requires producers of architectural paint to participate in a stewardship program for managing the end-of-life disposition of leftover paint.	2019	Paint Stewardship	RCW 70.375	product stewardship
HB 2265 / SB 6360 : Eliminates exemptions from restrictions on use of PFAS-containing firefighting foam.	2020	PFAS	RCW 70.75A .020	chemical policy

Table 1-7 lists relevant bills that the Legislature considered but did not pass in 2019 and 2020.

Table 1-7 Bills active but not passed in 2019–2020 legislative sessions

Description of Bill	Chemical	Product Stewardship or Chemical Policy?
HB 2496 : Providing for responsible environmental management of batteries.	Batteries	product stewardship
HB 1346 : Prohibits the sale of lead ammunition to persons under 21 years of age.	Lead	chemical policy
HB 1276 : Restricts the use of mercury in vaccines.	Mercury	chemical policy
HB 2325 / SB 6168 : Appropriates \$3,482,000 to implement chemical action plans, including related to PFAS in drinking water.	PFAS	chemical policy
SB 6342 : Requires public water facilities to test for PFAS, requires setting of Maximum Contaminant Levels for PFAS in drinking water.	PFAS	chemical policy

Description of Bill	Chemical	Product Stewardship or Chemical Policy?
<u>SB 6619:</u> Allows water utilities to review and comment on public or municipal corporations' plans to operate wells used to discharge fluids into the subsurface when the water utility finds PFAS chemicals in nearby drinking water.	PFAS	chemical policy
<u>HB 1143:</u> Requires any entity that releases firefighting foam containing PFAS to notify the Department of Ecology and the division of emergency management within the state's military department.	PFAS	chemical policy
<u>HB 1831:</u> Establishes regulatory framework to allow the State to set Maximum Contaminant Levels and require monitoring for PFAS chemicals and other contaminants.	PFAS	chemical policy



2021 Hazardous Waste Management Plan
November 2021 Final



APPENDIX H.

Public Review Communications Plan and Participation Summary

2021 Hazardous Waste Management Plan

Hazardous Waste Management Program in King County

APPROVED AND ADOPTED BY
KING COUNTY BOARD OF HEALTH
NOVEMBER 2021

Prepared by
Hazardous Waste Management Program in King County
Cascadia Consulting Group, Inc.

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1 Public Review Summary



1.1 Public Review Goals

The Hazardous Waste Management Program in King County (Program) conducted a public review process for the draft 2021 Hazardous Waste Management Plan (draft 2021 Plan). The goals of our public review process were to:

- Give the public an opportunity to provide input on the draft 2021 Plan in an accessible and easy-to-read way.
- Gauge public and partner support for the direction of the Program for the next 10 years.

1.2 Public Review Approach and Participation

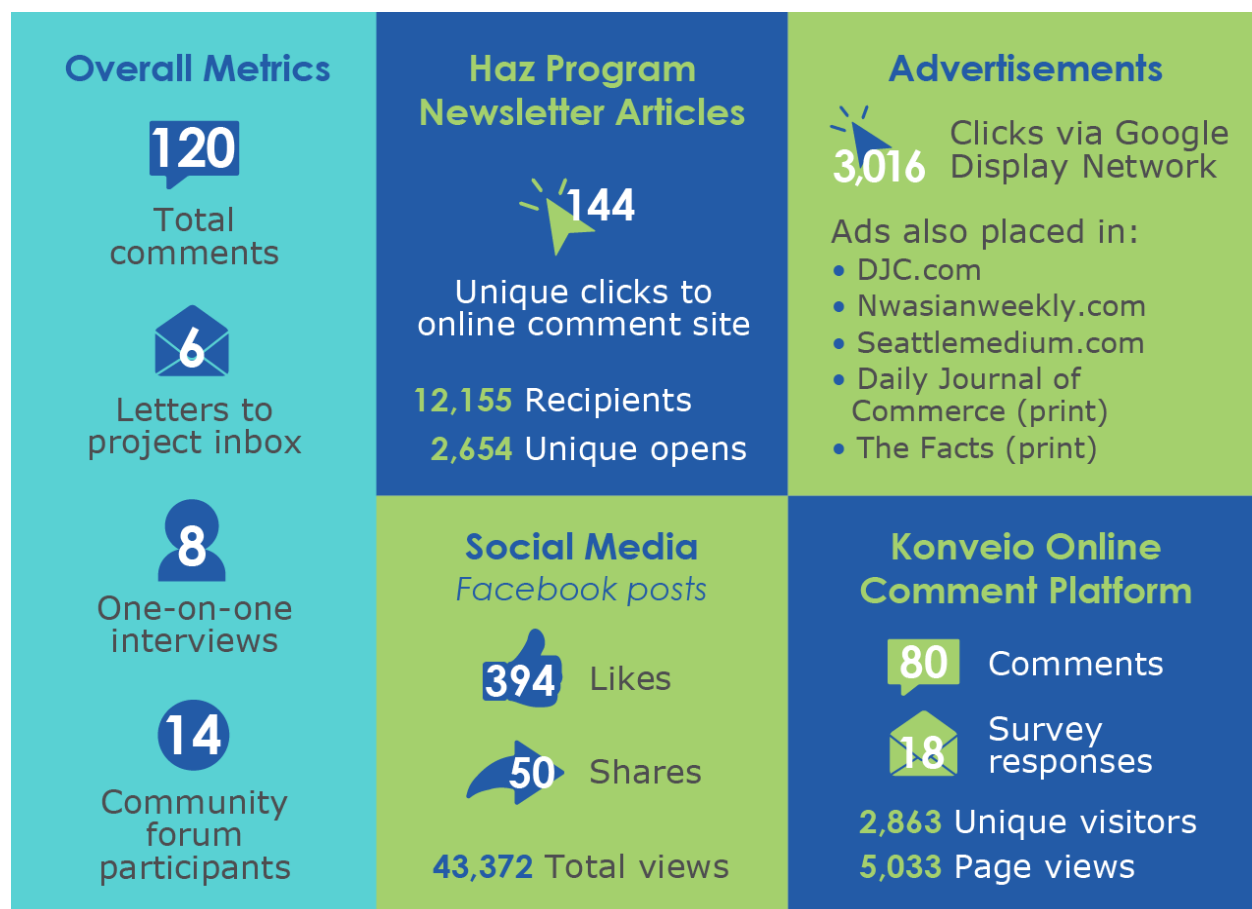
The Program published the draft 2021 Plan to an online platform called Konveio for public review and comment over a four-week period.

To spread the word about the public review opportunities, we used multiple channels of communication. First, we developed a communications and media toolkit that included content for social media posts, newsletters, blogs, the Program website, and emails. Then, we shared the toolkit with Program staff and with existing Program jurisdictional, agency, and community partners to help them spread the word through their own communication channels. We also sent emails to that same network as well as to other governmental and non-governmental community groups to invite them to review and comment on the draft 2021 Plan.

We also advertised the public review opportunity through print, display, and social media channels. We bought ads through partners including the Daily Journal of Commerce, ethnic media outlets, Facebook, and Google. Finally, we hosted a virtual drop-in forum for community members and interviewed small business owners in key industries.

By combining online communications, print advertising, direct engagement efforts, and existing Program partner and agency relationships and channels, we were able to widely share out the opportunity and engage our customers for public review.

Figure 1-1 presents the reach and participation metrics during public review. The following sections describe each of our approaches.

Figure 1-1 Public Review Reach & Participation Metrics

We created a communications and media toolkit to help our Program and partners spread the word about public review. The toolkit supplied visual and written content, including:

- Digital and print advertising copy, images, and graphics
- Social media copy and visual assets
- Newsletter, blog, or website content for Program staff and partners
- English-language two-page factsheet, translated into nine languages
- Draft email invitations for Program staff and partners

Digital and Print Advertising

The Program advertised the public review opportunity through print and online media channels. Channels included public notices purchased in print publications to meet the Washington State Department of Ecology's requirements, ethnic print

publications and their online opportunities, and programmatic display through Google's digital display advertising network. Placements included:

- Daily Journal of Commerce (print and online)
- The Facts (print)
- NW Asian Weekly (online)
- The Seattle Medium (online)
- Google Display Network (online banner ads)

Figure 1-2 Display banners



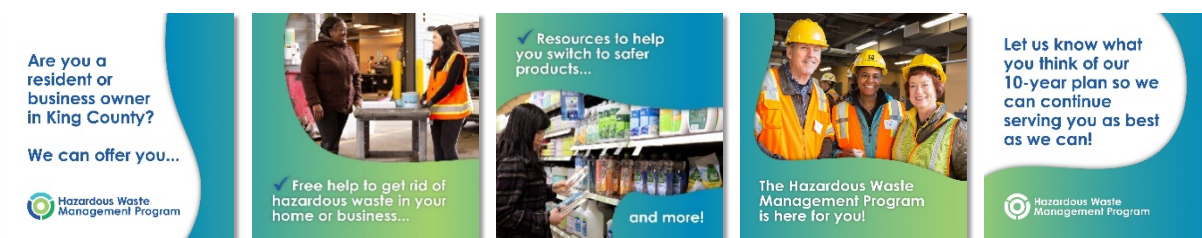
Figure 1-3 Print media ads

Social Media

The Program promoted public review through its social media channels. We also shared social media posts with our partner agencies. The following section outlines sample copy and visual assets we provided for various social media platforms including Facebook, Twitter, and Instagram. Visual assets included stand-alone images and carousel ad formats. Carousel ads combine multiple images or videos into one ad.

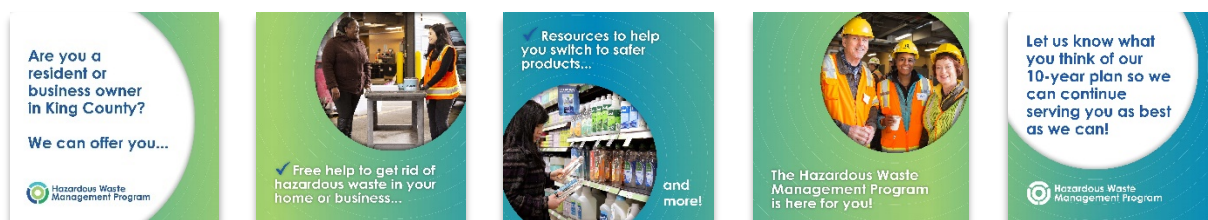
In 2020, our friends @KingCountyHazWaste kept 3 million pounds of hazardous waste out of homes, small businesses, and the environment. As a King County resident, worker, or business owner, you helped make this possible, so the Hazardous Waste Management Program wants to hear your thoughts on their 10-year plan before August 16! Check it out at: <http://www.HazPlanUpdate.com>

#HazWaste #HazardousWaste #KingCountyHazWaste

Figure 1-4 Infographic square and rectangle**Figure 1-5 Carousel advertisement option 1**

Shoutout to our partners at @KingCountyHazWaste who are working toward a Puget Sound region that's the cleanest in the country, free from hazardous chemical exposure. You can help make this future a reality by sharing your thoughts on the Program's update to its 10-year plan! Learn more at: bit.ly/HazWastePlanUpdate

#HazWaste #HazardousWaste #KingCountyHazWaste

Figure 1-6 Carousel advertisement option 2

Did you know as a resident or business owner in King County, our partners at the #KingCountyHazWaste Management Program offer free help to get rid of hazardous

waste and switch to safer products? Check out their 10-year and share your input!
www.HazPlanUpdate.com

Our friends at the #KingCountyHazWaste Management Program want to hear from YOU on how to help reduce hazardous waste exposure in your home and business. Share your thoughts on their 10-year plan for a healthy, clean, and equitable Puget Sound before 8/16! www.HazPlanUpdate.com

Newsletter or Blog

Figure 1-7 Newsletter square advertisement



[Call to Action Button] *Help build a healthy future!*

Did you know that as a resident in King County, you can get free help to dispose of hazardous waste and reduce toxic exposure in your home or business through services provided by our partners at the Hazardous Waste Management Program? In 2020, their collection and prevention services kept 3 million pounds of hazardous waste out of King County's environment! Right now, the Program is updating its 10-year plan, and wants to hear from you. Visit www.HazPlanUpdate.com to check out the Plan and share your thoughts—your voice is critical to a healthy, clean, and equitable future in Puget Sound!

Factsheets

We created a two-page English-language factsheet summarizing the draft 2021 Plan and translated it into King County Tier 1 and Tier 2 languages (Spanish, Vietnamese, Somali, Punjabi, Korean, Simplified Chinese, Russian, Ukrainian, and Amharic).

Figure 1-8 Factsheet (English)

HAZARDOUS WASTE MANAGEMENT PROGRAM 2021 Plan

Many products we use at home and at work – including cleaning supplies, pesticides, motor oil, oil-based paints, and varnishes – are hazardous. Hazardous products have harmful or dangerous ingredients that threaten the environment and human health. Some of them pose a risk even when we use and dispose of them properly.

The Hazardous Waste Management Program (our Program) works to reduce hazardous exposures to people and the environment in King County.

Our Vision

We're working toward a shared vision: where race is not a determinant of hazardous materials exposure in households and businesses in King County, and a Puget Sound region that's the cleanest in the country – one free from hazardous chemical exposure.

How We Work

We work towards our vision through services related to policy, prevention, and collection.

Policy

We promote system-level changes through policy and product stewardship initiatives to help ensure that chemicals and products are safe for people and the environment.

Prevention

We offer education, outreach, technical assistance, and incentives to residents and businesses to reduce exposure to hazardous materials and support them in adopting safer practices.

Collection

We provide hazardous waste collection services for households and qualified small businesses to protect human health, the environment, and our waste systems.

We want to hear from you!

The 2021 Plan provides a blueprint for how we will work to reduce hazardous exposures to people and the environment in King County through 2030.

The 2021 Plan will be open for Public Review from July 19 – August 16.

Our Plan

Every person should experience similar health outcomes, regardless of their race or community. Because each community faces different challenges to achieving these outcomes, each community may need different approaches.

We need to focus our efforts on building momentum for systems changes that promote safer alternatives and remove exposure to hazardous products in the first place.

Our strategies, focus on three areas to support systems change:

Policy Change
Advocate for policy changes that prevent exposure to hazardous materials, promote safer alternatives, and demand producer responsibility that shifts the burden of collection to the producers of hazardous materials.

Partnerships
Cultivate partnerships with communities, businesses, and agencies to support residents and small businesses and to advance policy initiatives.

Services & Support
Provide services and support to help residents and small businesses adopt safer alternatives and practices and build support for policy changes.

Strategies and Actions

We chose our strategies and actions based on findings from community and technical research, feedback from key partners, and our authorization. To achieve systems changes, our goals, approach, strategies, and actions must work together holistically to support people, the environment, and the changes we want to see.

Goal Area 1: Protect people and the environment from hazardous materials.

- Strategy 1.1: Advance extended producer responsibility initiatives
- Strategy 1.2: Advance policies that promote safer alternatives
- Strategy 1.3: Expand collection services and options

Goal Area 2: Focus our efforts on the most impacted communities – both at home and at work.

- Strategy 2.1: Provide in-language and in-culture services
- Strategy 2.2: Cultivate and steward relationships with communities

Goal Area 3: Be good stewards of Program resources.

- Strategy 3.1: Embed and implement racial equity principles in all operations
- Strategy 3.2: Build organizational capacity to address racial inequities
- Strategy 3.3: Identify emerging needs, issues, and trends
- Strategy 3.4: Align our work with our priorities
- Strategy 3.5: Evaluate and manage performance
- Strategy 3.6: Adaptively manage

Knowled Site: www.HazPlanUpdate.com
Email Us: info@hazplanupdate.com

Figure 1-9 Factsheet (Spanish)

PROGRAMA DE GESTIÓN DE RESIDUOS PELIGROSOS Plan de 2021

Muchos productos que usamos en casa y en el trabajo, incluidos los suministros de limpieza, los pesticidas, el aceite de motor, las pinturas a base de aceite y los barnices, son peligrosos. Estos productos tienen ingredientes dañinos o nocivos que amenazan a la salud de los seres humanos y al medioambiente. Algunos de ellos representan un riesgo incluso cuando los utilizamos y los deseamos adecuadamente.

El Programa de Gestión de Residuos Peligrosos (Hazardous Waste Management Program, nuestro Programa) trabaja para reducir las exposiciones peligrosas a las personas y al medioambiente en el condado de King.

Nuestra visión

Estamos trabajando para lograr una visión compartida: que la raza no sea un factor determinante de la exposición a los materiales peligrosos en los hogares y las empresas del condado de King, y que la región de Puget Sound sea la zona más limpia en el país y esté libre de la exposición a sustancias químicas peligrosas.

Cómo trabajamos

Trabajamos para lograr nuestra visión a través de servicios que se relacionan con las políticas, la prevención y la recolección.

Políticas

Promovemos cambios a nivel sistémico, a través de iniciativas de administración de productos y políticas para garantizar que las sustancias químicas y los productos sean seguros para las personas y el medioambiente.

Prevención

Ofrecemos educación, divulgación, asistencia técnica e incentivos a los residentes y las empresas con el fin de reducir la exposición a los materiales peligrosos y apoyar en la adopción de prácticas más seguras.

Recolección

Prestamos servicios de recolección de residuos peligrosos para los hogares y las pequeñas empresas que reúnen los requisitos, con el objetivo de proteger la salud de los seres humanos, el medioambiente y nuestros sistemas residuales.

¡Queremos escuchar su opinión!

El plan de 2021 establece un plan de acción hasta el 2030 para trabajar en la reducción de las exposiciones peligrosas que afectan a las personas y al medioambiente en el condado de King.

El plan de 2021 estará disponible para realizar una revisión pública del 19 de julio al 16 de agosto.

Nuestro plan

Todas las personas deberían experimentar resultados sanitarios similares, independientemente de su raza o comunidad. Debido a que cada comunidad se enfrenta a diferentes desafíos para lograr estos resultados, es posible que cada una necesite un abordaje distinto.

Debemos enfocar nuestros esfuerzos en impulsar cambios en el sistema que promuevan alternativas más seguras y que, en primer lugar, eliminen la exposición a los productos peligrosos.

Nuestras estrategias se centran en tres áreas para apoyar los cambios en el sistema:

Cambio en las políticas
Promover cambios en las políticas que eviten la exposición a los materiales peligrosos, promuevan alternativas más seguras y exijan una responsabilidad al productor que traslade la carga de la recolección a quienes producen materiales peligrosos.

Asociaciones
Desarrollar asociaciones con las comunidades, las empresas y las agencias para apoyar a los residentes y a las pequeñas empresas, y para promover iniciativas de políticas.

Servicios y asistencia
Proporcionar servicios y asistencia con el fin de ayudar a los residentes y las pequeñas empresas a implementar alternativas y prácticas más seguras, así como generar apoyo para los cambios en las políticas.

Estrategias y medidas

Eligimos nuestras estrategias y medidas en función de los resultados de la investigación técnica y de la comunidad, los comentarios de los socios clave y nuestra autorización. Para lograr cambios en el sistema, nuestros objetivos, enfoques, estrategias y medidas deben funcionar en conjunto y de manera integral para apoyar a las personas, el medioambiente y los cambios que deseamos ver.

Área n.º 1 del objetivo: Proteger a las personas y al medioambiente de los materiales peligrosos.

- Estrategia 1.1: Promover iniciativas de responsabilidad extendida del productor
- Estrategia 1.2: Promover políticas que fomenten alternativas más seguras
- Estrategia 1.3: Ampliar los servicios y las opciones de recolección

Área n.º 2 del objetivo: Enfocar nuestros esfuerzos en las comunidades más afectadas, tanto en el hogar como en el trabajo.

- Estrategia 2.1: Proporcionar servicios que correspondan al idioma y a la cultura de las comunidades
- Estrategia 2.2: Desarrollar y administrar las relaciones con las comunidades

Área n.º 3 del objetivo: Ser buenos administradores de los recursos del Programa.

- Estrategia 3.1: Incorporar e implementar principios de equidad racial en todas las operaciones
- Estrategia 3.2: Aumentar la capacidad organizativa para abordar las inequidades raciales
- Estrategia 3.3: Identificar las necesidades, los problemas y las tendencias que surjan
- Estrategia 3.4: Alinear nuestro trabajo con nuestras prioridades
- Estrategia 3.5: Evaluar y gestionar el desempeño
- Estrategia 3.6: Gestionar de manera flexible

Manténgase en contacto: www.HazPlanUpdate.com
Envíenos un correo electrónico: info@hazplanupdate.com

Email Invitations

The Program reached out to known stakeholders via email and—where feasible—by attending a scheduled meeting to announce the public review opportunity. The Program also sent two emails—one invitation and one reminder—to stakeholders subscribed to the Program listserv. The emails encouraged them to both review the draft 2021 Plan and forward the email to others who may be interested, especially those who are Program and community stakeholders.

These groups included:

- Management Coordination Committee (MCC)
- Program partner agencies
- Sound Cities Association (SCA)
- Metropolitan Solid Waste Management Advisory Committee (MSWAC)
- Program Intergovernmental City and Tribal Staff Workgroup
- Nongovernmental agencies and community-based organizations
- Governmental partners
- King County Board of Health
- Washington State Department of Ecology
- Program staff

Program Website

We posted information about the public review opportunity on the [2021 Plan project page](#) on the [Hazardous Waste Management Program website](#).

Public Review Email Address

The Program created and shared an email address for all communications about public review where participants could email questions or comments during the public review period.

Online Comment Platform

The Program gathered public comments using [Konveio](#), an interactive online platform that enabled users to read and comment on the draft 2021 Plan in PDF format and respond to survey questions. The Konveio site contained the draft 2021 Plan and its appendices in English, two-page summary factsheets in nine languages, and an English-language survey for providing feedback. Visitors were able to use Google Translate to read the website navigation and feedback survey in another language.

Online Community Forum

A key finding from our community research (see *Appendix F*) indicated that many community members prefer to provide feedback orally and in-language through a conversational event. During public review, the Program hosted an online community forum. This event was an effort to continue building long-lasting, authentic relationships with communities according to the strategic framework, guiding principles, and strategies and actions outlined in the draft 2021 Plan. We held the community forum using Zoom in English and Spanish, following the same outline and questions as the Konveio site. To widen the pool of forum attendees, the Program paid six community-based organizations (CBOs) to share the invitation for this event with their community members. In total, 14 people attended the forum, with 9 people taking part in the English session and 5 people participating in the Spanish session.

The objectives of the community forum were to:

- Share information about the Program and planning process, including our research findings.
- Share the overall direction of the draft 2021 Plan.
- Hear participant feedback and input on their concerns, priorities, and ideas for the Program and Plan.

Figure 1-10 Community forum invitations (English and Spanish)





One-on-One Business Interviews

During public review, the Program conducted eight one-on-one interviews with small business owners in some of the key industries that rose to the top of our worker demographics research, including property management, nail salons, construction, commercial and residential cleaning services, painters, and gardening services.

The objectives of the business interviews were to:

- Share information about the Program and planning process, including our research findings.
- Share the overall direction of the draft 2021 Plan.
- Hear participant feedback and input on their concerns, priorities, and ideas for the Program and Plan.

The interviews included a short presentation followed by a guided discussion using the same outline and questions as the Konveio site and community forum.

Figure 1-11 Example slides from business interviews

Hazardous Waste Management Program

Washington state law **requires all local governments** to have hazardous waste management plans and keep them up to date. We will update ours **every 10 years** to keep up with the needs of our residents and businesses.



Our Vision

We're working toward a shared vision: where race is not a determinant of hazardous materials exposure in households and businesses in King County, and a Puget Sound region that's the cleanest in the country – one free from hazardous chemical exposure.

2021 Plan Research & Priority Communities

As part of our evidence-based planning approach, the project team devised a research approach that sought to gather information directly from Priority Communities about the characteristics, needs, values, and preferences from the communities most impacted by exposures.

What we heard

Family Health	Affordability	Convenience & Accessibility
In-Language & In-Culture	Regulations	Environmental Health

1.3 Key Themes and How We Addressed Them

Overall, the draft 2021 Plan was well received during public review. Most participants expressed widespread support for the draft 2021 Plan's goals, theory of service, and commitment to prioritize racial equity. Participants appreciated the draft 2021 Plan's acknowledgment that hazardous product exposure affects both public health and the environment. We heard support for the draft 2021 Plan's adaptive management strategies, especially considering the changing demographics and regulations of King County. We also heard strong confirmation for expanding Program policy efforts to stop hazardous products at the source.

Participants in the community forum expressed appreciation for the draft 2021 Plan's proposed strategies and actions regarding cultivating partnerships, co-creation of programming, and strategic efforts to reach the most impacted communities and stakeholders. Forum participants who had participated in earlier focus groups (see *Appendix F* for details) said they felt engaged throughout the planning process and saw their earlier input reflected in the draft 2021 Plan direction. Forum participants also indicated that they were pleased with the Program for creating a community-specific space to share feedback.

Participants in the community forum and business interviews expressed strong support for extended producer responsibility. Business interview participants said they especially liked the Program's efforts to reach and train employees in-language. They indicated that it is often difficult to provide technical trainings for employees in languages other than English if the materials are not provided.

Themes Incorporated into the 2021 Plan

THEME TYPE	THEME	REVISION
Framing	The draft 2021 Plan appears to be heavily focused on protecting public health and less focused on protecting the environment from exposure to hazardous materials.	Added a graphic in the About Us section to highlight the impact that hazardous waste exposure has on the environment, animals, and people. Edited the 2021 Plan throughout to more explicitly highlight how our work prevents environmental exposure and contamination.

THEME TYPE	THEME	REVISION
Framing	More clearly highlight the Program's partnership with cities and Tribes.	Edited the 2021 Plan throughout to highlight city and Tribal partnerships more clearly.
Framing	Ensure that Program services are equitably distributed across geography and to BIPOC communities who live across the county.	Edited the 2021 Plan throughout to highlight our commitment to geographic equity more clearly.
Strategies and Actions	Make it clearer that the Program will evaluate Extended Producer Responsibility programs.	Added a more direct statement about evaluating programs under Strategy 1.1 and as example metrics in the <i>Performance Management</i> section of the 2021 Plan.
Strategies and Actions	Involve community stakeholders in evaluation activities.	Added a more direct statement of using participatory evaluation approaches in Strategy 3.5.
Strategies and Actions	Acknowledge prior commitment to co-locate MRW collection at the South King County Transfer Station in 2024.	Added as an action under Strategy 1.4.
Strategies and Actions	Adjust timeline of capital and other improvements to moderate risk waste collection facilities to account for near-term needs.	Moved up the timeline for planning and making improvements to the moderate risk waste collection facilities.
Additional content	Provide links to interlocal agreements that King County Solid Waste Division has with cities.	Added links to <i>Appendix G</i> .
Additional content	More clearly state what the Program considers to be hazardous waste.	The Program website provides the most up-to-date collections policies. Links to the relevant webpage are in <i>Appendix G</i> .
Editorial	Provide additional examples of hazardous products.	Added examples that are part of the Program's authorization as appropriate.

THEME TYPE	THEME	REVISION
Editorial	Provide additional references for racial equity data.	Added more citations and links to the <i>Theory of Service</i> section.
Editorial	Address clarity, grammar, typos, and formatting.	Edited as appropriate and completed additional proofreading.

Themes Not Incorporated into the 2021 Plan

THEME TYPE	THEME	WHY REVISION WAS NOT MADE
Praise	Support for the direction of the draft 2021 Plan.	No change needed. We thank you for your support.
Framework	Concern over the Program doing public health work.	The Program completes work that is part of its authorization as outlined in the <i>About Us</i> section and <i>Appendix A</i> .
Framework	Concern that the systems approach is too broad.	We will be working the coming years to narrow focus using our guiding principles and assessment criteria.
Framework	Requests to stop the production, distribution, and use of hazardous materials.	This is captured through our focus on systems change.
Additional content	Request for additional data about hazardous materials exposure to humans and the environment.	Data is not available or is presented in <i>Appendix E</i> .
Strategies and Actions	Requests for the Program to address specific exposures (including littered needles, illegal dumping, and homeless encampments) or questions about a specific exposure or hazardous product.	The exposures or issues were outside of the Program's authorization, already addressed by the Program, or will be considered as the 2021 Plan is implemented.

THEME TYPE	THEME	WHY REVISION WAS NOT MADE
Strategies and Actions	Requests for the Program to reconsider its policy on latex paint.	The MCC decided to discontinue collecting latex paint based on scientific and operations considerations. The MCC may reconsider in the future.
Strategies and Actions	Requests for the Program to provide information in languages other than English.	This is already in the 2021 Plan as a focus of Strategy 2.1.
Strategies and Actions	Ideas for services, outreach/education, and other tactics.	The Program will consider these ideas as we implement strategies. These ideas are at a level too detailed for this type of plan.
Editorial	Requests for editorial, stylistic, or formatting changes.	Upon review, we determined that the requested changes were not needed or appropriate.
Other	Concerns about resources being placed on overhead.	The Program operates within its established rate structure and King County approved budget.



2021 Hazardous Waste Management Plan
November 2021 Final

APPENDIX I.
**State Environmental Policy (SEPA)
Review and Determination (DNS)**
2021 Hazardous Waste Management Plan

**Hazardous Waste Management
Program in King County**

APPROVED AND ADOPTED BY
KING COUNTY BOARD OF HEALTH
NOVEMBER 2021

Prepared by
Hazardous Waste Management Program in King County

SEPA ENVIRONMENTAL CHECKLIST

Purpose of checklist:

Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. You may use "not applicable" or "does not apply" only when you can explain why it does not apply and not when the answer is unknown. You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Instructions for Lead Agencies:

Please adjust the format of this template as needed. Additional information may be necessary to evaluate the existing environment, all interrelated aspects of the proposal and an analysis of adverse impacts. The checklist is considered the first but not necessarily the only source of information needed to make an adequate threshold determination. Once a threshold determination is made, the lead agency is responsible for the completeness and accuracy of the checklist and other supporting documents.

Use of checklist for nonproject proposals:

For nonproject proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B plus the [SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS \(part D\)](#). Please completely answer all questions that apply and note that the words "project," "applicant," and "property or site" should be read as "proposal," "proponent," and "affected geographic area," respectively. The lead agency may exclude (for non-projects) questions in Part B - Environmental Elements –that do not contribute meaningfully to the analysis of the proposal.

A. Background

1. Name of proposed project, if applicable:

2021 Update for the Hazardous Waste Management Plan for the years 2021-2030 (2021 Plan Update)

2. Name of applicant:

**Local Hazardous Waste Management Program
King Street Center
201 South Jackson St, Suite 5600
Seattle, WA 98104**

3. Address and phone number of applicant and contact person:

**Lynda Ransley
Program Direction, Local Hazardous Waste Management Program
206-263-8241
lynda.ransley@kingcounty.gov**

**Office of the Program Director
Local Hazardous Waste Management Program
King Street Center
201 South Jackson St, Suite 5600
Seattle, WA 98104**

4. Date checklist prepared: **6/2/2021**

5. Agency requesting checklist:

Washington State Department of Ecology (Ecology) under the guidelines for the preparation of hazardous waste management plans.

6. Proposed timing or schedule (including phasing, if applicable):

Anticipated Plan adoption is March 2022

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

The Washington State Department of Ecology requests updates to the Hazardous Waste Management Plan every five to ten years.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

- **An Environmental Impact Statement (EIS) was completed for the original 1990 Hazardous Waste Management Plan for King County.**

- The 1997 Local Hazardous Waste Management Plan Update for King County was issued a Determination of Significance and an Adoption of Existing Environmental Documents under WAC 173-11-965. However, that determination was made citing no anticipated significant changes in service, program emphasis, or funding.
- A SEPA checklist was prepared for the Factoria MRW collection facility (Transfer Station Hazardous Materials Locker) and a Determination of Nonsignificance was issued on June 7, 2001.
- A SEPA checklist and a SEPA Nonproject Review Form, both dated 9/27/2010, were prepared for the Factoria Recycling and Transfer Station (RTS) Master Plan, King County Project No. 003168. It can be found here: [Factoria Facility Master Plan Environmental Checklist and SEPA Nonproject Review Form - Factoria Recycling & Transfer Station Replacement Project - King County Solid Waste Division.](#)
- A SEPA checklist dated February 2012 was prepared for the Factoria Recycling and Transfer Station Replacement Project. It can be found here: [SEPA Environmental Checklist - Factoria Recycling & Transfer Station Replacement Project - King County Solid Waste Division.](#)
- A Mitigated Determination of Nonsignificance (MDNS) dated March 8, 2012 was prepared for the Factoria Recycling and Transfer Station Replacement Project. It can be found here: [Issuance of Mitigated Determination of Nonsignificance - Factoria Recycling & Transfer Station Replacement Project - King County Solid Waste Division.](#)
- No additional environmental impacts relating directly to the 2021 Plan Update, as discussed in this checklist, are anticipated. The 2021 Plan Update reflects a set of strategies that are not site-specific. Site-specific environmental review will be undertaken, as appropriate, for any projects implemented after the 2021 Plan Update is adopted, although no projects requiring such review are proposed in the 2021 Plan Update.

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

No applications for approvals directly affecting the 2021 Plan Update are pending.

10. List any government approvals or permits that will be needed for your proposal, if known.

The only government approvals that are needed include the approval and adoption of the 2021 Plan Update document by the MCC and the King County Board of Health, with final approval by Ecology. No governmental permits or reviews are anticipated to implement the activities identified in the 2021 Plan Update.

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

The Local Hazardous Waste Management Program (Program) was established in response to a Washington State statutory requirement {RCW 70A.300.350(a)} that local jurisdictions develop plans for managing hazardous wastes generated by residents, and in small quantities by businesses, schools and institutions. This 2021 Plan Update is a non-project action that makes current the Program's original 1990 Plan (and the subsequent 1997 Plan Update and the 2010 Plan Update).

The 2021 Plan Update is a set of non site-specific strategies that build on the goals and strategies of the prior plans. The Program uses technical assistance, information provision, incentives, collection services, and coordination with enforcement agencies to encourage residents and conditionally exempt Small Quantity Generators (CESQGs or SQGs) to reduce their use of hazardous materials, to properly use and store them, and to properly dispose of hazardous wastes.

The 2021 Plan Update dated is comprised of the following content: About Us; Our Theory of Service; How We Prioritize Our activities; Our Services and Achievements; Creating the 2021 Plan; Research Findings that Guided this Plan; Strategies and Actions; Performance Management; Funding and Budget; and Appendices: Our Required and Authorized Services (Appendix A); How We Prioritize Our Activities (Appendix B); 2020 Annual Report (Appendix C); 2021 Annual Work Plan (Implementation Plan) (Appendix D); Technical Research Summary (Appendix E); Priority Community Research Summary (Appendix F); Documentation for Ecology (Appendix G); Public Review Communications Plan and Participation Summary (Appendix H); State Environmental Policy (SEPA) Review and Determination of Non-Significance (DNS) (Appendix I)

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

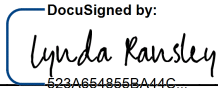
The activities proposed in the 2021 Plan Update apply through the boundaries of King County. This includes thirty- seven suburban cities, the City of Seattle, the Muckleshoot and Snoqualmie Indian Reservations, and all of the unincorporated areas of King County. The only area that is not covered by this proposal is the town of Milton (which is partially in King and Pierce Counties and participates in Pierce County's Hazardous Waste Management Program). The activities in the 2021 Plan Update are not site-specific.

B. Environmental Elements

Pursuant to Instructions on Page 1 ("Use of checklist for nonproject proposals"), Section B questions are excluded because this is a non-project action and the questions in Section B do not contribute meaningfully to the analysis of the proposal.

C. Signature

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature:  523A654855BA44C...

Lynda Ransley
Program Director
Local Hazardous Waste Management Program in King County

Date Submitted: 7/14/2021

D. Supplemental sheet for nonproject actions

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

Adoption of the 2021 Plan Update is not anticipated to have any significant impact on discharge to air; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise. Slight increases in vehicle emissions may result in the short-term from increased trips to collection sites resulting from expanded and more effective outreach about disposal of hazardous waste.

Proposed measures to avoid or reduce such increases are:

None.

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

Adoption of the 2021 Plan Update is not anticipated to negatively affect plants, animals, fish or marine life.

Proposed measures to protect or conserve plants, animals, fish, or marine life are:

None.

1. How would the proposal be likely to deplete energy or natural resources?

Adoption of the 2021 Plan Update is not anticipated to deplete energy or natural resources.

Proposed measures to protect or conserve energy and natural resources are:

None.

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?

Adoption of the 2021 Plan Update is not anticipated to negatively affect environmentally sensitive areas.

Proposed measures to protect such resources or to avoid or reduce impacts are:

None.

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

Adoption of the 2021 Plan Update is not anticipated to negatively affect land and shoreline use.

Proposed measures to avoid or reduce shoreline and land use impacts are:

None.

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

Adoption of the 2021 Plan Update is not anticipated to increase demands on transportation or public services and utilities.

Proposed measures to reduce or respond to such demand(s) are:

None.

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

No conflicts are known. The 2021 Plan Update addresses moderate risk waste (household hazardous waste and hazardous wastes generated in small quantities by businesses, schools and institutions) as required by RCW 70.105.220.

PUBLIC NOTICE2021 Update for the Hazardous Waste Management Plan for the years 2021-2030**1. INTRODUCTION:**

The Local Hazardous Waste Management Program was established in response to a Washington State statutory requirement (RCW 70A.300.350(a)) that local jurisdictions develop plans for managing hazardous wastes generated by residents, and in small quantities by businesses, schools and institutions. This 2021 Plan Update is a non-project action that makes current the Program's original 1990 Plan (and the subsequent 1997 Plan Update and the 2010 Plan Update).

The 2020 Plan Update is a set of non site-specific strategies that build on the goals and strategies of the prior plans. The Program uses technical assistance, information provision, incentives, collection services, and coordination with enforcement agencies to encourage residents and conditionally exempt Small Quantity Generators (CESQGs or SQGs) to reduce their use of hazardous materials, to properly use and store them, and to properly dispose of hazardous wastes.

2. NON-PROJECT ACTION:

This is a non-project action affecting hazardous waste management in King County. This non-project action does not make any changes to the agency's three fixed facilities, or its traveling Wastemobile, which operates at various sites throughout the county.

3. REVIEW AND COMMENTS PROCESS:

This application is on file at the offices of the Public Health-Seattle and King County, Environmental Health Services Division, 401 5th Avenue, Suite 1100, Seattle, Washington 98104. Electronic or printed copies of the application can be requested. Currently, in-person reviews cannot be scheduled due to the COVID-19 pandemic. To request electronic or printed copies of the application, contact Kristin Pace at (206) 263-1469 or via email at kristin.pace@kingcounty.gov

Any person may express their views on this permit application. Comments must be written. Comments will be accepted until **August 16, 2021** and must be submitted to:

Local Hazardous Waste Management Program
PUBLIC NOTICE: 2021 Plan Update
Attn: Lynda Ransley
King Street Center
201 South Jackson St, Suite 5600
Seattle, WA 98104



Local Hazardous Waste Management Program
King Street Center
201 South Jackson St, Suite 5600
Seattle, WA 98104

Or email at: info@hazplanupdate.com

Any person who requests, in writing, a copy of the DNS will be notified by the Local Hazardous Waste Management Program.

This notice can be provided in alternative languages upon request.



Local Hazardous Waste Management Program
King Street Center
201 South Jackson St, Suite 5600
Seattle, WA 98104

State Environmental Policy Act (SEPA) WAC 197-11

DETERMINATION OF NON-SIGNIFICANCE

July 13, 2021

Lead Agency: Public Health — Seattle & King County

Agency Contact: Lynda Ransley
Office of the Program Director
Local Hazardous Waste Management Program
King Street Center
201 South Jackson St, Suite 5600
Seattle, WA 98104

Description of proposal: 2021 Update for the Hazardous Waste Management Plan for the years 2021-2030.

Location of proposal: This is a non-project action affecting hazardous waste management in King County. This non-project action does not make any changes to the agency's three fixed facilities, or its traveling Wastemobile, which operates at various sites throughout the county.

Title of document being adopted: *Hazardous Waste Management Plan 2021 Plan Update* (2021 Plan Update)

Date adopted document was prepared: July 19, 2021 (It is anticipated that the Washington State Department of Ecology will consider and adopt the 2021 Plan Update in March 2022.)

Description of document: The Local Hazardous Waste Management Program was established in response to a Washington State statutory requirement (RCW 70A.300.350(a)) that local jurisdictions develop plans for managing hazardous wastes generated by residents, and in small quantities by businesses, schools and institutions. This 2021 Plan Update is a non-project action that makes current the Program's original 1990 Plan (and the subsequent 1997 Plan Update and the 2010 Plan Update).

The 2020 Plan Update is a set of non site-specific strategies that build on the goals and strategies of the prior plans. The Program uses technical assistance, information provision, incentives, collection services, and coordination with enforcement agencies to encourage residents and conditionally exempt Small Quantity Generators (CESQGs or SQGs) to reduce their use of hazardous materials, to properly use and store them, and to properly dispose of hazardous wastes.

The 2021 Plan Update dated is comprised of the following content: About Us; Our Theory of Change; The 2021 Plan Update dated is comprised of the following content: About Us; Our Theory of Service; How We Prioritize Our activities; Our Services and Achievements; Creating the 2021 Plan; Research Findings that Guided this Plan; Strategies and Actions; Performance Management; Funding and Budget; and Appendices: Our Required and Authorized Services (Appendix A); How We Prioritize Our Activities (Appendix B); 2020 Annual Report (Appendix C); 2021 Annual Work Plan (Implementation



Local Hazardous Waste Management Program
 King Street Center
 201 South Jackson St, Suite 5600
 Seattle, WA 98104

Plan) (Appendix D); Technical Research Summary (Appendix E); Priority Community Research Summary (Appendix F); Documentation for Ecology (Appendix G); Public Review Communications Plan and Participation Summary (Appendix H); State Environmental Policy (SEPA) Review and Determination of Non-Significance (DNS) (Appendix I)

The document is available at: The 2021 Plan Update is available at the Local Hazardous Waste Management Program website www.hazwastehelp.org.

Notice and public hearing: Community meetings were held in Fall 2020 as part of the development of the 2021 Plan Update. Notice of the 2021 Plan Update was published in the *Daily Journal of Commerce*, *The Facts*, *NW Asian Weekly*, *Seattle Medium*, Google Banner Ads, boosted Facebook and Instagram, and shared via email with jurisdictional partners.

The 2021 Plan Update is a non-project action per WAC 197-11-704(2)(b)(iii), and no site-specific actions are proposed as part of the proposal.

The Local Hazardous Waste Management Program in King County is the lead agency and has determined that this 2021 Plan Update will not result in probable significant adverse impact to the environment. An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). This decision was made after review of a completed environmental checklist and the 2021 Plan Update.

This Determination of Non-Significance (DNS) is issued under WAC 197-11-340(2) and the comment period will end on August 16, 2021.

Responsible Official: Darrell Rodgers, Ph.D.

Position/Title: Director of the Environmental Health Services Division

Telephone: 206-263-1412

E-mail: darrell.rodgers@kingcounty.gov

Address: Chinook Building
 401 5th Ave Ste 1100
 Seattle, WA 98104

Contact person: Lynda Ransley
 206-263-8241
lynda.ransley@kingcounty.gov

Date: 7/14/2021

Signature  0DAC61B3C035439...

Comments and Appeals: Although there is no administrative appeal of this DNS, the Hazardous Waste Management Program welcomes your comments. Comments received before August 16, 2021 will be reviewed by the lead agency.



2021 Hazardous Waste Management Plan
November 2021 Final



APPENDIX J.

Documentation of Approval by Board of Health and Department of Ecology

2021 Hazardous Waste Management Plan

Hazardous Waste Management Program in King County

APPROVED AND ADOPTED BY
KING COUNTY BOARD OF HEALTH
NOVEMBER 2021

Prepared by
Hazardous Waste Management Program in King County



KING COUNTY

1200 King County Courthouse
516 Third Avenue
Seattle, WA 98104

Signature Report

Resolution 21-09

Proposed No. 21-09.1

Sponsors

1 A RESOLUTION approving and adopting the 2021 plan
2 update for the Local Hazardous Waste Management
3 Program in King County.

4 WHEREAS, RCW 70.105.220 requires local governments to prepare and
5 implement local hazardous waste plans, and

6 WHEREAS, the Local Hazardous Waste Management Program ("the program")
7 was launched in 1990 to fulfill that state statute through the efforts of a coalition of local
8 governments including the city of Seattle, King County and other cities and Tribes within
9 King County, and

10 WHEREAS, the King County Board of Health, in BOH chapter 2.08, established
11 and authorizes the program's management coordination committee ("the committee") to
12 prepare and implement the required plans through the coalition of governments
13 represented on the committee, and

14 WHEREAS, the committee summarized, from those plans, the program's mission,
15 which is to protect and enhance public health and environmental quality in King County
16 by reducing the threat posed by the production, use, storage and disposal of hazardous
17 materials, and

18 WHEREAS, the program's last plan update was in 2010, and, since that time,
19 there have been significant changes in the populations and businesses that the program
20 serves, the number and the complexity of hazardous materials and products that the

Resolution 21-09

21 program addresses, the scientific understanding of the toxicity of those products and the
22 approach the program is trying to take to reduce or prevent the use of hazardous
23 components in products during their manufacture, and

24 WHEREAS, on June 18, 2020, the board passed Resolution 20-08, declaring
25 racism a public health crisis, and it has been demonstrated that Black, Indigenous and
26 People of Color experience lower outcomes related to health, housing, income, education,
27 employment and criminal justice due to institutional and systemic racism, and

28 WHEREAS black, Indigenous, and people of color can be disproportionately
29 exposed to hazardous materials, and

30 WHEREAS the program has a vision that race is not a determinate of hazardous
31 waste exposure, and

32 WHEREAS, the program assessed its past approaches and activities, and worked
33 to obtain input from the public and its partner agencies, to develop a plan update that
34 comprehensively addresses changes since 2010, including changes in populations and
35 businesses, changes in hazardous products and materials and changes in the program's
36 approaches;

37 NOW, THEREFORE, BE IT RESOLVED by the Board of Health of King
38 County:

Resolution 21-09

- 39 The Board of Health hereby approves and adopts the Local Hazardous Waste
40 Management Program's 2021 Management Plan Update (November 2021).

Resolution 21-09 was introduced on and passed by the Board of Health on 11/18/2021,
by the following vote:

Yes: 10 - Mr. Baker, Dr. Daniell, Dr. Delecki, Ms. Honda, Ms. Kohl-
Welles, Mr. McDermott and Mr. Zahilay

Excused: 3 - Ms. Mosqueda, Mr. Lewis and Ms. Morales

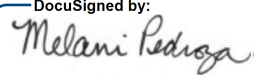
KING COUNTY BOARD OF HEALTH
KING COUNTY, WASHINGTON

DocuSigned by:

6D0E6E444F08459...

Joe McDermott, Chair

ATTEST:

DocuSigned by:

8DE1BB375AD3422...

Melani Pedroza, Clerk of the Board

Attachments: None



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

*Northwest Regional Office • PO Box 330316 • Shoreline, WA 98133-9716 • 206-594-0000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341*

March 9, 2022

Lynda Ransley

Program Director

Local Hazardous Waste Management Program in King County

201 S. Jackson Street, Suite 5600

Seattle, WA 98104

RE: Local Hazardous Waste Management Program 2021 Update of its Hazardous Waste Management Plan

Dear Lynda Ransley:

The Department of Ecology (Ecology) is pleased to approve the *Hazardous Waste Management Plan, 2021 PLAN*, dated November 2021 (Plan), submitted for final review and consideration on December 10, 2021.

We applaud the partnership between King County, City of Seattle, Tribes, and 37 cities across King County to form the Local Hazardous Waste Management Program in King County (Program) and provide a suite of options for hazardous waste management across the jurisdictions. This updated Plan revises the Program's Local Hazardous Waste Management Plan prepared under RCW [70A.300.350](#) to reflect and analyze the current state of the world, emerging policies and programs, characteristics of those served by the Program, ways to prevent hazardous material use, best management practices for both engaging the public and handling received wastes, and more. It is written with a focus on diversity, equity, inclusion, and respect. Extensive efforts were made to connect with served communities, particularly those identified by the Program as priority communities. Program front-line workers were consulted, and buy-in cultivated. In short, this is a thorough and thoughtful Plan.

Ecology looks forward to the Program's implementation of this Plan, and continued leadership in protecting humans and the environment from hazardous materials, by means upstream, during use, and at the end of a product's life.

Regards,

A handwritten signature in black ink, appearing to read "Steven Williams", is written over a light blue horizontal line.

Steven Williams

Section Manager

Solid Waste Management Program

cc: Kristin Pace, Ph.D., Local Hazardous Waste Management Program in King County
Diana Wadley, WA Department of Ecology



2021 Hazardous Waste Management Plan
November 2021 Final