



Use Food Well Washington Plan Recommendations

**Report to the Legislature
developed under RCW 70A.205.715**

Solid Waste Management Program

Washington State Department of Ecology
Olympia, Washington

June 2022, Publication 21-07-036

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(see page 12 of the *Use Food Well Washington Plan* for more information)

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Department of Ecology's Regional Offices

Map of Counties Served



Southwest Region 360-407-6300	Northwest Region 206-594-0000	Central Region 509-575-2490	Eastern Region 509-329-3400
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Region	Counties served	Mailing Address	Phone
Southwest	Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Mason, Lewis, Pacific, Pierce, Skamania, Thurston, Wahkiakum	PO Box 47775 Olympia, WA 98504	360-407-6300
Northwest	Island, King, Kitsap, San Juan, Skagit, Snohomish, Whatcom	PO Box 330316 Shoreline, WA 98133	206-594-0000
Central	Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, Yakima	1250 W Alder St Union Gap, WA 98903	509-575-2490
Eastern	Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman	4601 N Monroe Spokane, WA 99205	509-329-3400
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Executive Summary

Food waste is one of the greatest challenges of our time, with significant environmental, social, and economic impacts. Washington annually generates more than one million tons of food waste, with a large portion (about 35 percent) being edible food going to landfills². In 2019, the Washington State Legislature passed Engrossed Second Substituted House Bill 1114 to address food waste and wasted food. The law was codified as [Revised Code Washington \(RCW\) 70A.205.715](#). The full text is provided in [Appendix A](#).

This law established a statewide food waste reduction goal of 50 percent by 2030 and required a subset of the goal to focus on reducing the amount of wasted edible food. The law also required the Department of Ecology (Ecology) to annually track progress towards the state's food waste reduction goals and to develop and adopt a food waste reduction plan to meet Washington's 2030 goals.

This legislative report is required under RCW 70A.205.715(3)(f), which states:

In conjunction with the development of the wasted food reduction and food waste diversion plan, the department and the departments of agriculture and health must consider recommending changes to state law, including changes to food quality, labeling, and inspection requirements under chapter [69.80](#) RCW and any changes in laws relating to the donation of food waste or wasted food for animals, in order to achieve the goal established in subsection (1) of this section. Any such recommendations must be explained via a report to the legislature submitted consistent with RCW [43.01.036](#) by December 1, 2020. Prior to any implementation of the plan, for the activities, programs, or policies in the plan that would impose new obligations on state agencies, local governments, businesses, or citizens, the December 1, 2020, report must outline the plan for making regulatory changes identified in the report. This outline must include the department or the appropriate state agency's plan to make recommendations for statutory or administrative rule changes identified. In combination with any identified statutory or administrative rule changes, the department or the appropriate state agency must include expected cost estimates for both government entities and private persons or businesses to comply with any recommended changes.

Ecology worked with the Washington departments of Agriculture, Commerce, Health, and the Office of Superintendent of Public Instruction (OSPI), along with over 100 experts to develop recommendations and draft the [Use Food Well Washington Plan \(UFWW Plan\)](#). The plan details the 2030 food waste reduction goals, baseline data calculations, and strategies to reduce food waste in Washington.

The law required Ecology to draft a legislative report to explain state agency statutory and rule-change proposals recommended in the plan. The legislative report includes compliance cost estimates for businesses, the public, and government entities. The report also includes rule change explanations and estimated implementation costs. Future policy research and considerations are also included on page 12.

² Washington State Department of Ecology [Ecology]. 2021. Use Food Well Washington: A roadmap to a more resilient food system. Publication 21-07-027. Washington State Department of Ecology, Olympia.

Use Food Well Washington Plan Recommendations

The planning process identified 30 recommendations and concluded food waste reduction is best done through public-private partnerships and strategic investments in staffing, education, and infrastructure. The plan identifies barriers to food waste reduction, ([Appendix B](#)) and how those barriers are often rooted in the lack of sustainable funding, networking opportunities, and critical infrastructure. The *UFWW Plan's* recommendations span federal policy, state policy, funding, public education needs, and the need for infrastructure development. A full list of the recommendations can be found in [Appendix C](#).

Ecology's research concluded that if all of the plan's recommendations are implemented, over 1 million tons of food waste could be diverted to higher uses each year. A significant portion of this reduction, at least 295,000 tons per year, would be edible food diverted to hunger relief, K-12 nutrition, or new markets. This is critical when over 2 million Washingtonians experience unprecedented food insecurity in 2020.³

Within the 30 recommendations, two are state-level administrative rule changes identified as necessary by OSPI and expert workgroups.

- Recommendation 11 – Support 20-minute seated lunch minimum in elementary schools.
- Recommendation 12 – Support recess before lunch in elementary schools.

Four recommendations require continued policy research and collaboration.

- Recommendation 5 – Create the Washington Center for Sustainable Food Management.
- Recommendation 8 – Research strategies and develop partnerships to prevent food and food waste from entering landfills.
- Recommendation 9 – Improve regulatory certainty for organics facility operations.
- Recommendation 10 – Develop an emergency food distribution plan for schools.

Ecology proposes to facilitate workgroups to support Recommendations 5, 8, and 9. OSPI identified a planning process and will begin work immediately on Recommendation 10. Additional financial resources will be needed for implementing other recommendations in the *UFWW Plan*.

³ Northwest Harvest. 2021. Addressing the Food Security Crisis in Washington. https://www.northwestharvest.org/wp-content/uploads/COVID-19-Report-Policy-Brief-05.28.2020_rev.pdf

Rule Changes

During the planning process, four changes to federal rules, two changes to state rules, and seven other state-level policy recommendations were identified as necessary to help achieve Washington's 2030 food waste reduction goals.

OSPI created a roadmap that includes considerations and estimated costs associated with the two recommended rule changes.

- Recommendation 11 – Support 20-minute seated lunch minimum in elementary schools.
- Recommendation 12 -- Support recess before lunch in elementary schools.

Both recommendations include changes to [Washington Administrative Code 392-157-125](#).

The estimated compliance costs for these rule changes are borne primarily by the state government. Business and local public sectors are not impacted. OSPI would absorb the majority of costs associated with these rule changes, including staffing, technical assistance, and implementation support. Assumed staffing includes Management Analysts for a mid-level complexity rulemaking, and Education Administrator and Administrative Assistant positions for district implementation. Actual costs will depend on rulemaking specifics developed during the rulemaking process, and the resulting implementation needs. See the *UFWW Plan* for more information.

Combined costs for both recommendations as estimated by Ecology's economist, are e \$267,934, including \$256,762 in rulemaking costs, and \$11,172 in district implementation costs. This breaks down to an annualized cost of \$33,034 for both recommendations through 2030. The first costs incurred would be for rule making, followed by implementation costs.⁴

Once fully implemented, Ecology's research estimates the two recommendations have a combined annual food waste diversion potential of 5,649 tons.⁴

⁴ Washington State Department of Ecology [Ecology]. 2021. Use Food Well Washington: A roadmap to a more resilient food system. Publication 21-07-027. Washington State Department of Ecology, Olympia.

Recommendation 11

Support 20-minute seated lunch minimum in elementary schools

OSPI is implementing the Seated Lunchtime Pilot Program, which was extended through the 2021-2022 school year. A condition of the extension directs OSPI to conduct a pilot program for a select group of K-12 schools. These schools will implement a 20-minute seated lunchtime, and OSPI will provide technical support and work with schools to develop best practices. The information gathered will direct training and resources developed by OSPI as it implements this recommendation across the state.

Recommendation 11 Milestones:

- Complete the Seated Lunchtime Pilot Program in the 2021-2022 School Year.
- In 2024, hire and appoint staff to lead the statewide implementation of the recommendation. Develop training and materials to support schools.
- In 2025, provide training, technical assistance, and funding to K-12 schools for the implementation of the recommendation.
- Implement the recommendation in 2026. OSPI monitors success during administrative reviews for the National School Lunch and Breakfast Programs every four years and provides ongoing technical assistance and training.

Additional funding resources to support OSPI in this effort will be necessary because the funding extension ends when the 2021-2022 school year is complete. The U.S. Department of Agriculture provides the majority of funding to OSPI for school nutrition programs and is subject to federal regulations and oversight. Federal funds are not available to implement this recommendation.

Calculations show this recommendation could divert about 3,168 tons of food waste per year while generating a net financial benefit of \$158,864. The annualized cost for OSPI to implement this recommendation is \$16,517. This reflects an estimated \$128,381 for rulemaking and \$5,586 for district-level implementation. The actual cost would depend on timing, sequencing, and duration of rule development and implementation.⁵

To the extent rulemaking and implementation of Recommendation 11 could be combined with work done under Recommendation 12, there is potential to reduce costs for both recommendations and still gain all their benefits. Both recommendations address current lunch requirements and practices and have the same stakeholder groups.

⁵ Washington State Department of Ecology [Ecology]. 2021. Use Food Well Washington: A roadmap to a more resilient food system. Publication 21-07-027. Washington State Department of Ecology, Olympia.

Recommendation 12

Support recess before lunch in elementary schools

OSPI will develop best practices for implementing recess before lunch with the help of schools that have already implemented it in Washington and other states. The information gathered from early adopters will be used to develop training and resources needed for Recommendation 12's implementation.

As with Recommendation 11, many schools will face significant barriers to successfully implementing Recommendation 12, including staffing challenges. Providing additional resources, technical assistance, and funding will be necessary to mitigate these challenges.

OSPI will monitor the implementation of this recommendation every four years during the National School Lunch Program administrative reviews of Washington's school nutrition programs, but with state funding. OSPI would continue to provide training and technical assistance to schools in the years that follow.

The U.S. Department of Agriculture provides the majority of funding to OSPI for school nutrition programs, which can only be used for oversight of federal programs. Additional funding to support OSPI in this ongoing effort – including implementation oversight – will be necessary. OSPI will provide best practice training to schools in the last phase of this recommendation's implementation.

OSPI will need adequate funding to hire additional staff to make rule changes to [Washington Administrative Code \(WAC\) 392-157-125](#) and to provide training and other resources like best practices to elementary schools.

Ecology's calculations show this recommendation could divert over 2,481 tons of food waste, per year, while generating a net financial benefit of \$120,831 annually. To implement the recommendation, the total estimated rule making cost for OSPI is \$128,381, and the total implementation costs at the district level are estimated to be \$5,586. The actual cost would depend on timing, sequencing, and duration of rule development and implementation.⁶

Recommendation 12 Milestones:

- Establish best practices for implementing recess before lunch in elementary schools by January 2023.
- In 2024, hire staff to lead statewide implementation of recess before lunch. Develop training and materials to support elementary schools' implementation of recess before lunch.
- In 2025, provide statewide training to elementary schools on implementing recess before lunch. Provide technical assistance to elementary schools. Distribute Implementation funds provided to elementary schools.
- In 2026, begin implementation of recess before lunch requirement in elementary schools. OSPI provides ongoing technical assistance and training and ensures successful implementation of the requirement every four years.

⁶ Washington State Department of Ecology [Ecology]. 2021. Use Food Well Washington: A roadmap to a more resilient food system. Publication 21-07-027. Washington State Department of Ecology, Olympia.

Future policy work and research

[RCW 70A.205.715](#) required Ecology and planning partners to consider changes to state law, specifically [Chapter 69.80 RCW, Washington’s Food Donation, and Distribution – Good Samaritan Food Donation Act](#). Through the expert workgroups and agency collaboration, the state departments of Agriculture and Health considered recommending changes to state law, including changes to food quality, labeling, and inspection requirements under [Chapter 69.80 RCW](#).

No state statutory changes were recommended for [Chapter 69.80 RCW](#). Instead, planning partners recommend action at the federal level to address date labeling, food donation, and safety. More information on the federal policy recommendations is highlighted on page 32 of the *UFWW Plan*.

To support existing rules and opportunities to reduce food waste under Washington’s Food Donation and Distribution – Good Samaritan Food Donation Act ([Chapter 69.80 RCW](#)), the *UFWW Plan* encourages increasing state funding to local health jurisdictions (Recommendation 15). Ecology’s research found more state funding is necessary to support additional full-time employees at local health jurisdictions and increase the number of opportunities for them to connect with local food businesses and hunger relief organizations.

Additional funding will also be needed to support statewide education and behavior change campaigns. Campaigns centered on food waste and wasted food reduction are recommended to change behaviors in both the commercial and residential sectors (Recommendations 18 and 19). Ecology’s research found that education centered on food waste reduction could help drive measurable food waste reduction across the food system, particularly for the residential and commercial sectors. By focusing on prevention, rescue, and recovery, Recommendations 18 and 19 have an estimated food waste diversion potential of 46,500 tons of food waste generated per year⁷.

Implementing the other recommendations from the *UFWW Plan* will require additional funding in the future. Ecology will submit future budget requests as needed to continue support of the *UFWW Plan*’s recommendations.

Ecology

Within the *UFWW Plan*, three Ecology-led recommendations need additional research to determine the best way to move forward.

- Recommendation 5 - Create the Washington Center for Sustainable Food Management (WCSFM).
- Recommendation 8 - Research strategies and develop partnerships to prevent food and food waste from entering landfills.
- Recommendation 9 - Improve regulatory certainty for organics facility operations.

⁷ Washington State Department of Ecology [Ecology]. 2021. Use Food Well Washington: A roadmap to a more resilient food system. Publication 21-07-027. Washington State Department of Ecology, Olympia.

Recommendation 5 (Create the WCSFM) improves the efficiency of other recommendations that could be implemented as part of the WCSFM's regular work through facilitating public-private partnerships and leading food waste reduction efforts statewide. The other recommendations will be supported by research, information, guidance, and networking facilitated by the WCSFM. Ecology's research shows an investment of \$1 million per year in WCSFM could reduce the implementation and transaction costs of other recommendations by over \$7 million. Ecology's economic analysis estimate was based on the amount of research, project development, outreach, and other implementation costs that would be avoided by using resources at the WCSFM instead of developing each project piecemeal.⁸

Recommendation 8 (Research strategies and develop partnerships to prevent food and food waste from entering landfills) could produce a variety of strategies to prevent food from entering landfills. Because there is uncertainty about which strategies will be developed and implemented, we considered the scenario of a regulatory ban on food waste from large generators going to landfills. Implementation would cost \$1.6 million based on an assessment of a similar ban in New York scaled to Washington waste data⁹. Funding would pay for equipment and training, and help avoid \$4.8 million in disposal costs by diverting food waste to compost or anaerobic digestion facilities instead of landfills. Gaining the commodity value of the resulting compost and energy are additional benefits.¹⁰

This work relies on Recommendation 9 (Improve regulatory certainty for organics facility operations) to improve the organics facility permitting process and promote building or possibly expanding composting facilities; or with Recommendations 27, 28, and 29, to increase anaerobic digester capacity.

Recommendation 9 (Improve regulatory certainty for organics facility operations) includes a process similar to a rulemaking that involves multiple stakeholders and examines stakeholder needs in a regulatory context. Ecology economist estimates review of the permitting processes would require work similar to a complex rulemaking, and carry an annualized cost of \$63,526 over 8 years, based on overall cost of \$515,252.

Most of the regulatory uncertainty preventing the addition of composter capacity is related to new air quality requirements. Improving regulatory certainty for organics management will help expand capacity, support the diversion of food waste from disposal, and avoided disposal costs.

⁸ Washington State Department of Ecology [Ecology]. 2021. Use Food Well Washington: A roadmap to a more resilient food system. Publication 20-07-0001. Washington State Department of Ecology, Olympia.

⁹ New York State Energy Research and Development Authority (NYSERDA), 2017. Benefit-Cost Analysis of Potential Food Waste Diversion Legislation. Final Report. Prepared by Industrial Economics, Incorporated, Cambridge, MA. NYSERDA

¹⁰ Washington State Department of Ecology [Ecology]. 2021. Use Food Well Washington: A roadmap to a more resilient food system. Publication 21-07-027. Washington State Department of Ecology, Olympia.

Office of the Superintendent of Public Instruction

Recommendation 10 requires OSPI to lead ongoing planning. This work has potential rule change impacts.

- Recommendation 10 - Develop an emergency food distribution plan for Washington schools.

OSPI will develop best practices and statewide guidance for the K-12 system to distribute school meals to students when emergencies prevent in-person attendance. This may include rule changes to [WAC 392-157-125](#).

OSPI will assemble an Emergency Food Distribution Schools Advisory Team that includes Child Nutrition Program staff, school nutrition staff, and partner organizations. This team will meet regularly to gather input and draft the plan. The director of Child Nutrition Services approves the plan and files it for use during future emergencies.

Milestones/Goals:

- OSPI assembles an emergency food distribution advisory team for schools.
- Advisory team meets during the 2021-2022 school year to develop plan.
- OSPI written plan is complete by June 30, 2022.

Ecology's economic analysis showed this recommendation has potential to reduce food waste by 5,375 tons, annually, while generating net financial benefits of \$25 million when fully implemented.¹¹ Estimates show OSPI would incur \$128,000 of the estimated \$2.8 million total cost for development and execution of a 10-year plan. Total costs include costs of acquisition and distribution of meal kits equivalent to the additional funds allocated to the WA PEBT program during the 2020 portion of the pandemic for emergency food assistance. Cost divisions are based on a review of COVID-19 EBT funding administered through the Supplemental Nutrition Assistance Program in Washington. The funds that remain will cover the costs for materials and staff to activate the plan during a food emergency. Apart from the additional benefits of presenting food waste reduction education in schools, some impacts from this recommendation include reduced hauling fees and lower costs of purchasing food through a wasted food prevention program.

Federal policy

Washington has an opportunity to become a national leader in food waste and wasted food reduction by advocating for these four recommendations. Ecology's research identified necessary changes to federal policy to meet state, regional, national, and global food waste and wasted food reduction goals.

This research shows federal policy recommendations reduce food waste and support more effective implementation of other recommendations to achieve a \$4 benefit for every \$1 invested. Four federal recommendations were identified. Recommendations 1 through 4 address food donation, safety, and labeling at the federal level:

¹¹ Washington State Department of Ecology [Ecology]. 2021. Use Food Well Washington: A roadmap to a more resilient food system. Publication 21-07-027. Washington State Department of Ecology, Olympia.

- Recommendation 1 – Improve the Bill Emerson Good Samaritan Food Donation Act.
- Recommendation 2 – Standardize date labels.
- Recommendation 3 – Improve markets for lower-grade or imperfect produce.
- Recommendation 4 – Improve federal tax incentives.

Ecology’s economic analysis, along with feedback from partner agencies, food businesses, and hunger relief organizations, detail the benefits of these four federal actions. Ecology’s estimates show the federal policy recommendations have 49,000 tons of cumulative annual food waste diversion potential, including at least 295,000 tons of edible food that would have otherwise gone to landfills ([Appendix D](#)).

Recommendation 1 (Improve the Bill Emerson Good Samaritan Food Donation Act) would facilitate increased donations and improve the coordination of distressed food sales and donations.

Recommendation 2 (Standardize date labels) would change how consumers purchase and dispose of food, and how retail and wholesale inventories are managed. Food manufacturers would incur the costs of changing their labels and - along with retailers and foodservice businesses - would benefit by avoiding disposal fees and wholesale food purchases. Consumers would also benefit by decreasing date label confusion.

Recommendation 3 (Improve markets for imperfect produce) could take many forms, depending on the markets that are developed or expanded. Imperfect and surplus produce channels would take longer to develop, but achieve the highest net benefits of reduced disposal costs and increased product sales. Food collection strategies could be implemented on shorter timeframes and achieve smaller, but significant benefits. Staff would use information gathered during a public process to understand the full implications of developing new markets alongside existing markets. The one-time cost for this effort is \$543,437 for development and outreach work similar to agency standards for a complex rulemaking.¹²

Recommendation 4 would increase food donations to hunger relief organizations and decrease their costs to purchase food. It would also provide tax incentives that would shift funds away from tax collection to food donation. This would reduce Washington’s federal tax revenues, and has potential to reduce the broader federal funds disbursed to the state.

The [Zero Food Waste Act](#) and the [Cultivating Organic Matter through the Promotion of Sustainable Techniques \(COMPOST\) Act](#) were introduced in the U.S. Congress to improve critical infrastructure that reduces food waste. Although these bills have not passed, some members of Congress are interested in the food waste issue, generally, and Ecology anticipates more federal guidance and support on food waste reduction.

¹² Washington State Department of Ecology [Ecology]. 2021. Use Food Well Washington: A roadmap to a more resilient food system. Publication 21-07-027. Washington State Department of Ecology, Olympia.

Conclusion

Through this report, Ecology and partner agencies have addressed the requirements in RCW 70A.205.715(3)(f). Two state-level rule changes were identified by OSPI to reduce food waste and wasted food in schools. Estimated costs and the outline to begin changing those rules are included in this report. Additional research, rule changes, and policy improvements are needed and should continue through public-private partnerships.

The *UFWW Plan* is Washington State's roadmap to develop a more resilient food system through food waste reduction. The 30 recommendations are a collection of challenging and practical solutions to address barriers to food waste reduction and build on current efforts happening across the state. Building on the abundance of innovative waste reduction work requires strong public-private partnerships and dedicated funding. These recommendations focus on public-private partnerships and sustainable funding over regulation whenever feasible.

Ecology's economic analysis ([Appendix D](#)) found no single solution to meet the state's 2030 goals. Rather, solutions are an interconnected network of recommendations across the food system. When implemented together, the 30 recommendations have the capacity to meet those goals by 2030.

As improvements are made to federal and state policies, and funding for education and infrastructure development is increased, Ecology's research shows Washington can achieve measurable reductions of food waste and wasted food. This work should not stop when we reach 2030 goals because food is too valuable to waste. It is critical to continue moving forward to close the loop on the lifecycle of food nutrition.

More information on how to move from planning into action is in the [Use Food Well Washington Plan](#).

Appendix A. RCW 70A.205.715

RCW 70A.205.715

Food waste reduction—Goal—Plan—Definitions.

(1) A goal is established for the state to reduce by fifty percent the amount of food waste generated annually by 2030, relative to 2015 levels. A subset of this goal must include a prevention goal to reduce the amount of edible food that is wasted.

(2) The department may estimate 2015 levels of wasted food in Washington using any combination of solid waste reporting data obtained under this chapter and surveys and studies measuring wasted food and food waste in other jurisdictions. For the purposes of measuring progress towards the goal in subsection (1) of this section, the department must adopt standardized metrics and processes for measuring or estimating volumes of wasted food and food waste generated in the state.

(3) By October 1, 2020, the department, in consultation with the department of agriculture and the department of health, must develop and adopt a state wasted food reduction and food waste diversion plan designed to achieve the goal established in subsection (1) of this section.

(a) The wasted food reduction and food waste diversion plan must include strategies, in descending order of priority, to:

(i) Prevent and reduce the wasting of edible food by residents and businesses;

(ii) Help match and support the capacity for edible food that would otherwise be wasted with food banks and other distributors that will ensure the food reaches those who need it; and

(iii) Support productive uses of inedible food materials, including using it for animal feed, energy production through anaerobic digestion, or other commercial uses, and for off-site or on-site management systems including composting, vermicomposting, or other biological systems.

(b) The wasted food reduction and food waste diversion plan must be designed to:

(i) Recommend a regulatory environment that optimizes activities and processes to rescue safe, nutritious, edible food;

(ii) Recommend a funding environment in which stable, predictable resources are provided to wasted food prevention and rescue and food waste recovery activities in such a way as to allow the development of additional capacity and the use of new technologies;

(iii) Avoid placing burdensome regulations on the hunger relief system, and ensure that organizations involved in wasted food prevention and rescue, and food waste recovery, retain discretion to accept or reject donations of food when appropriate;

(iv) Provide state technical support to wasted food prevention and rescue and food waste recovery organizations;

(v) Support the development and distribution of equitable materials to support food waste and wasted food educational and programmatic efforts in K-12 schools, in collaboration with the office of the superintendent of public instruction, and aligned with the Washington state science and social studies learning standards; and

(vi) Facilitate and encourage restaurants and other retail food establishments to safely donate food to food banks and food assistance programs through education and outreach to retail food establishment operators regarding safe food donation opportunities, practices, and benefits.

(c) The wasted food reduction and food waste diversion plan must include suggested best practices that local governments may incorporate into solid waste management plans developed under RCW 70A.205.040.

(d) The department must solicit feedback from the public and interested stakeholders throughout the process of developing and adopting the wasted food reduction and food waste diversion plan. To assist with its food waste reduction plan development responsibilities, the department may designate a stakeholder advisory panel. If the department designates a stakeholder advisory panel, it must consist of local government health departments, local government solid waste departments, food banks, hunger-focused nonprofit organizations, waste-focused nonprofit organizations, K-12 public education, and food businesses or food business associations.

(e) The department must identify the sources of scientific, economic, or other technical information it relied upon in developing the plan required under this section, including peer-reviewed science.

(f) In conjunction with the development of the wasted food reduction and food waste diversion plan, the department and the departments of agriculture and health must consider recommending changes to state law, including changes to food quality, labeling, and inspection requirements under chapter 69.80 RCW and any changes in laws relating to the donation of food waste or wasted food for animals, in order to achieve the goal established in subsection (1) of this section. Any such recommendations must be explained via a report to the legislature submitted consistent with RCW 43.01.036 by December 1, 2020. Prior to any implementation of the plan, for the activities, programs, or policies in the plan that would impose new obligations on state agencies, local governments, businesses, or citizens, the December 1, 2020, report must outline the plan for making regulatory changes identified in the report. This outline must include the department or the appropriate state agency's plan to make recommendations for statutory or administrative rule changes identified. In combination with any identified statutory or administrative rule changes, the department or the appropriate state agency must include expected cost estimates for both government entities and private persons or businesses to comply with any recommended changes.

(4) In support of the development of the plan in subsection (3) of this section, the department of commerce must contract for an independent evaluation of the state's food waste and wasted food management system.

(5) The definitions in this subsection apply throughout this section unless the context clearly requires otherwise.

(a)(i) "Food waste" means waste from fruits, vegetables, meats, dairy products, fish, shellfish, nuts, seeds, grains, and similar materials that results from the storage, preparation, cooking, handling, selling, or serving of food for human consumption.

(ii) "Food waste" includes, but is not limited to, excess, spoiled, or unusable food and includes inedible parts commonly associated with food preparation such as pits, shells, bones, and peels. "Food waste" does not include dead animals not intended for human consumption or animal excrement.

(b) "Prevention" refers to avoiding the wasting of food in the first place and represents the greatest potential for cost savings and environmental benefits for businesses, governments, and consumers.

(c) "Recovery" refers to processing inedible food waste to extract value from it, through composting, anaerobic digestion, or for use as animal feedstock.

(d) "Rescue" refers to the redistribution of surplus edible food to other users.

(e) "Wasted food" means the edible portion of food waste.

Appendix B. Barriers to food waste reduction

The following barriers were identified during the development of the [Use Food Well Washington Plan](#) as major challenges to reducing food waste. This list is also found in Appendix E of the *UFWW Plan*.

Access to financing

Food waste reduction solutions have varying returns depending on their complexity, which can result in a lower return on investment. In addition to already tight profit margins, this discourages businesses and consumers from investing in food waste reduction. Similarly, many food waste reduction projects have high up-front costs that discourage investment despite their long-term economic benefits.

Truly understanding the value of food

A greater effort and a cultural shift are needed to help consumers and businesses truly understand the value of food so they use food well.

Hunger relief and food rescue support needed

The greatest need for HROs is to modernize and increase storage and distribution capacity across the state's interconnected system of food banks. Increasing access to cold chain facilities, transportation mapping, and related technology would dramatically transform system performance. Additionally, food pantries, meal programs, and other community organizations may not have sufficient infrastructure or labor to accept, inspect, and store large volumes of donated food. This problem is more acute in rural communities. Similarly, many consumer-facing businesses lack sufficient facilities to store food for donation.

Washington provides funding for local hunger relief agencies through the Emergency Food Assistance Program (EFAP) managed by Washington State Department of Agriculture (WSDA). Through this program, WSDA distributes funding to county-level lead contractors that make funding allocation decisions for their county. There is no special category for regional distribution hubs or state strategy for systems-level improvements. This means all hunger relief agencies in a county compete for a share of local funding, although they may have different roles in the statewide network.

The current situation is not conducive for systems-level investment strategies, such as dedicated funding for redistribution hub infrastructure that provides efficiencies to the whole system. Existing state-level financing mechanisms can support this effort. Ecology can develop a new grant program for food waste prevention, rescue, and recovery to address these challenges.

Regulatory uncertainty

Regulatory uncertainty can also hinder food waste reduction. Health regulations vary from state to state, each with different interpretations of the FDA Food Code and other food laws. This obstructs food businesses from developing uniform food donation policies across organizations. Regulatory uncertainty also exists within the food recovery sector.

Reducing regulatory uncertainty would encourage more rapid or greater expansion of composting capacity. This helps reduce delays and the cost to implement other recommendations that would send food waste to a compost facility instead of a landfill. The state's existing compost facilities would face less pressure if they were expanded to increase their annual capacity by *at least* 54,000 tons. The pressure on these facilities would be even less with clear and consistent regulation, statewide. Increasing costs to haul food waste longer distances is the only other option.

Gaps in the food system

Data on how food flows through the food system is virtually non-existent. This creates uncertainty about where food waste occurs in the food system and how much is being wasted. Similarly, the cost of food waste is often invisible, and makes it difficult to manage when it's not being measured. This results in food being inaccurately valued.

End market development and contamination reduction

The difficulty of removing food from its packaging significantly reduces food recycling rates among business and residential customers. Common contaminants include plastics, takeout containers, or food packaging that appears compostable, but is not. Compost or anaerobic digestion facilities that receive highly contaminated feedstock must spend more costs on pre- and post-processing, which reduces profitability. Washington's food waste reduction strategies must include contamination reduction components to be successful and better support end market development.

Appendix C. Use Food Well Washington Plan recommendations

Federal policy

1. Strengthen the Bill Emerson Good Samaritan Food Donation Act.
2. Support a national date labeling standard.
3. Increase markets for lower-grade or “imperfect” produce.
4. Improve federal tax incentives.

State policy

5. Create the Washington Center for Sustainable Food Management (WCSFM).
6. Continue support for the Pacific Coast Food Waste Commitment (PCFWC).
7. Connect the Use Food Well Washington Plan to the Food Policy Forum.
8. Research strategies and develop partnerships to prevent food and food waste from entering landfills.
9. Improve regulatory certainty for organics facility operations.
10. Develop an emergency food distribution plan for Washington schools.
11. Support 20-minute seated lunch minimum in Washington elementary schools.
12. Support recess before lunch in Washington elementary schools.
13. Increase access to food waste reduction education in Washington schools.

Funding

14. Dedicate state grant funding for statewide food waste reduction.
15. Increase funding for local health jurisdictions.
16. Increase funding for local government food waste reduction work.
17. Build more farm to school partnerships.

Public education

18. Develop and maintain statewide food waste reduction campaigns.
19. Develop and maintain statewide food waste contamination reduction campaign.

Infrastructure development

20. Increase use of food waste and wasted food data tracking.
21. Develop and maintain maps of food and wasted food flows.
22. Improve food donation transportation.
23. Increase access to cold chain management.
24. Build more community food hubs.
25. Support value-added food processing and manufacturing.
26. Increase infrastructure investment in schools.
27. Expand AD at WRRFs, compost facilities, and farms.
28. Develop High-solids anaerobic digesters for mixed organic residuals.
29. Increase use of small-scale anaerobic digester.
30. Diversify food waste management systems.

Appendix D. Economic analysis

Overview of Approach

Ecology estimated the costs, benefits, and potential diversion resulting from the 30 recommendations with a set of goals in mind:

- Comparable estimates: Using consistent underlying assumptions, timeframe, and unit values
- Versatile results: Estimates that can be considered individually or combined with others
- Interrelated impacts: Reflecting ways recommendations may facilitate, reduce costs, or increase benefits of other recommendations
- Avoiding double-counting: Ensuring impacts are not reflected more than once in total calculations.
- Ordered, flexible timing: Reflecting the cost of financing capital projects and deployment of large-scope projects over time

Precision and uncertainty

The degree and precision of Ecology’s quantified estimates necessarily rely on the specificity and scope of each recommendation. Estimates presented should be considered “high-level” and are based on assumptions regarding implementation and scope, including:

- Statewide versus geographically variable deployment of administrative recommendations (e.g., K-12 related recommendations, local health jurisdictions)
- The number, locations, and attributes of potentially large capital investments (e.g., anaerobic digesters, hubs, transportation)
- Degree of uptake of voluntary programs and improved regulatory structures (e.g., composter expansion, food donation)
- Speed of research and development in understanding the food system and distributing information or establishing networks
- Recommendations with a range of possible implementations are reflected in estimates using a subset or scenario

The degree to which assumptions such as the list above would affect estimates varies by recommendation or applies to specific illustrative scenarios that may not reflect all of the options a recommendation suggests.

Cost scope

Ecology based annual or annualized costs on the cost of implementation, as well as initial development, capital investment, staffing, or other startup costs of an implemented recommendation. Ecology cited references using discount rates and combined approaches, and annualized capital costs over 10 years using a 4 percent discount rate to maintain consistency across independent calculations.

Benefit scope

Capital costs are annualized because most impacts reported here are scalable by tons of food waste. Most unit costs and benefits are calculated yearly. Estimated impacts may be less scalable for recommendations with uncertain development and repayment timelines, highly variable site-specific attributes, or significant capital investment. Cost estimates reflect state administrative costs for each recommendation, as well as the costs for businesses and local governments to implement project process changes, equipment purchases, and staffing. Costs and benefits of recommendations that involve a public development process, rulemaking, or research will vary depending on the outcomes of those processes.

Sources and application

Ecology used nearly 60 cumulative sources across analyses of the 30 recommendations. Many are used across multiple recommendations to develop consistent, comparable estimates and methodological approaches.

- Estimates for some recommendations were independently developed based on Washington-specific data, research, and assumptions.
- In some cases, Ecology was able to scale estimates from the literature to apply a cost or benefit per ton diverted.
- Staff extrapolated tons of food waste diverted from the implementation costs of similar programs in some cases.
- Where a Washington-specific estimate was available from the 2020 ReFED (Rethinking Food waste through Economics and Data) Insight Engine or data was available at the state and sector levels, staff either applied them or adjusted them so the scope or direction of recommendations in this plan was accurately reflected.
 - To ensure ReFED estimates were or were not applicable - and to what degree - staff studied their underlying methodologies and assumptions that were not restricted to the affected sectors and unit values of underlying costs and benefits.
 - Where estimates could be refined with additional or new data relevant specifically to Washington, Ecology included the data in calculations.
 - To allow for some variable assumptions, staff estimated ranges of impacts and present the median of each range.

Special cases: financing recommendations

Recommendations 14 and 16 address the financing of the other recommendations directly or through local governments. Ecology calculated the impacts for these and related recommendations and added the estimated costs to implement the funding and distribution program independently through local staff. The impacts summarized below are the result of these two funding mechanisms and reflect all impacts of all other recommendations, including independent implementation costs.

Estimated impacts by recommendation

Most impacts reported here are scalable by tons of food waste because capital costs are annualized and most unit costs or benefits are calculated yearly. Estimated impacts may be less scalable for recommendations with uncertain development and repayment timelines, highly variable site-specific attributes, or significant capital investment. Cost estimates reflect state administrative costs of each recommendation, costs of implementing projects, equipment purchases, and staffing at businesses or local governments. Costs and benefits of recommendations that involve a public development process, rulemaking, or research will vary depending on the outcomes of those processes. Cost estimates are outcomes of this research and are not the same as implementation cost estimates included in fiscal notes.

Table 1. UFWW Plan recommendations estimated costs, benefits, and diversion potential summary table

Rec#	Annual Costs (\$/yr)	Annual Gross Benefits (\$/yr)	Annual Net Benefits (\$/yr)	Avoided Transaction Costs (\$/yr)	Diversion Potential (tons/yr)	Edible Diversion Potential (tons/yr)	GHG Impact (MTCO2e /yr) ^a	Avoided SCC 2022 (\$/yr) ^b	Avoided SCC 2030 (\$/yr) ^c
FEDERAL POLICY									
1	\$1,509,577	\$21,617,056	\$20,107,480	\$0	16,311	16,311	-23,467	\$1,854,690	\$2,099,876
2	\$177,706	\$53,193,216	\$53,015,511	\$0	12,771	12,771	-18,374	\$1,452,138	\$1,644,108
3	\$6,679,400	\$25,930,461	\$19,251,061	\$0	10,206	10,206	-14,684	\$1,160,529	\$1,313,949
4	\$19,875,000	\$12,455,000	-\$7,420,000	\$0	10,150	10,150	-14,603	\$1,154,095	\$1,306,664
<i>Subtotal</i>	<i>\$28,241,682</i>	<i>\$113,195,733</i>	<i>\$84,954,052</i>	<i>\$0</i>	<i>49,437</i>	<i>49,437</i>	<i>-71,128</i>	<i>\$5,621,453</i>	<i>\$6,364,597</i>
STATE POLICY									
5	\$1,000,000	\$7,924,138	\$6,924,138	\$7,924,138	n/a	n/a	n/a	n/a	n/a
6	\$203,958	\$669,838	\$465,880	\$669,838	n/a	n/a	n/a	n/a	n/a
7	\$134,236	\$204,844	\$70,609	\$204,844	n/a	n/a	n/a	n/a	n/a
8	\$1,571,114	\$4,775,726	\$3,204,612	\$0	73,903	0	-106,329	\$8,403,526	\$9,514,455
9	\$5,282,227	\$5,411,445	\$129,217	\$0	54,000	0	-77,693	\$6,140,284	\$6,952,017
10	\$2,776,883	\$27,617,172	\$24,840,289	\$0	5,375	5,375	-7,733	\$611,183	\$691,980
11	\$16,517	\$175,380	\$158,864	\$0	3,168	3,168	-4,558	\$360,232	\$407,854
12	\$16,517	\$137,348	\$120,831	\$0	2,481	2,481	-3,570	\$282,113	\$319,408
13	\$6,097,438	\$6,609,118	\$511,681	\$0	2,931	2,931	-4,217	\$333,258	\$377,314
<i>Subtotal</i>	<i>\$17,098,889</i>	<i>\$53,525,010</i>	<i>\$36,426,120</i>	<i>\$8,798,820</i>	<i>141,858</i>	<i>13,955</i>	<i>-204,100</i>	<i>\$16,130,596</i>	<i>\$18,263,028</i>
FUNDING									

Rec#	Annual Costs (\$/yr)	Annual Gross Benefits (\$/yr)	Annual Net Benefits (\$/yr)	Avoided Transaction Costs (\$/yr)	Diversion Potential (tons/yr)	Edible Diversion Potential (tons/yr)	GHG Impact (MTCO2e /yr) ^a	Avoided SCC 2022 (\$/yr) ^b	Avoided SCC 2030 (\$/yr) ^c
14*	\$299,842,657	\$1,362,793,518	\$1,062,950,861	\$0	1,225,377	168,776	-1,763,024	\$139,337,107	\$157,757,186
15	\$47,781,785	\$462,714,420	\$414,932,634	\$0	104,179	104,179	-149,889	\$11,846,148	\$13,412,184
16*	\$43,686,069	\$108,371,798	\$64,685,729	\$0	100,238	22,427	-144,218	\$11,398,019	\$12,904,813
17	\$5,343,210	\$10,469,797	\$5,126,588	\$0	4,508	4,508	-6,486	\$512,632	\$580,401
<i>Subtotal*</i>	<i>53,124,995</i>	<i>473,184,217</i>	<i>420,059,222</i>	<i>0</i>	<i>108,687</i>	<i>108,687</i>	<i>-156,375</i>	<i>12,358,780</i>	<i>13,992,585</i>
PUBLIC EDUCATION									
18	\$2,319,436	\$139,041,652	\$136,722,216	\$0	31,014	0	-44,622	\$3,526,611	\$3,992,822
19	\$2,319,436	\$2,695,576	\$376,140	\$0	15,507	0	-22,311	\$1,763,306	\$1,996,411
<i>Subtotal</i>	<i>\$4,638,873</i>	<i>\$141,737,229</i>	<i>\$137,098,356</i>	<i>\$0</i>	<i>46,521</i>	<i>0</i>	<i>-66,933</i>	<i>\$5,289,917</i>	<i>\$5,989,233</i>
INFRASTRUCTURE									
20	\$21,731,857	\$97,514,815	\$75,782,958	\$0	20,359	20,359	-29,291	\$2,314,982	\$2,621,018
21	\$52,980	\$2,641,379	\$2,588,400	\$2,641,379	n/a	n/a	n/a	n/a	n/a
22	\$31,262,219	\$215,068,931	\$183,806,713	\$0	48,300	48,300	-69,493	\$5,492,211	\$6,218,270
23	\$30,129,769	\$99,709,883	\$69,580,114	\$0	22,427	22,427	-32,267	\$2,550,164	\$2,887,291
24	\$7,368,073	\$64,572,353	\$57,204,280	\$0	25,405	25,405	-36,552	\$2,888,828	\$3,270,725
25	\$28,300,064	\$68,440,799	\$40,140,735	\$0	27,854	0	-40,076	\$3,167,287	\$3,585,996
26	\$1,189,734	\$3,087,769	\$1,898,034	\$0	6,811	6,811	-9,800	\$774,497	\$876,884
27	\$105,489,939	\$133,479,107	\$27,989,168	\$0	783,817	0	-1,127,725	\$89,127,518	\$100,909,993
28	\$2,712,454	\$3,432,137	\$719,683	\$0	36,842	0	-53,007	\$4,189,316	\$4,743,135
29	\$4,279,206	\$1,244,809	-\$3,034,396	\$0	3,908	0	-5,622	\$444,328	\$503,067
30	\$254,993	\$331,144	\$76,151	\$0	3,388	0	-4,875	\$385,248	\$436,177
<i>Subtotal</i>	<i>\$232,771,286</i>	<i>\$689,523,127</i>	<i>\$456,751,841</i>	<i>\$2,641,379</i>	<i>979,112</i>	<i>123,303</i>	<i>-1,408,708</i>	<i>\$111,334,380</i>	<i>\$126,052,556</i>
TOTAL*	\$343,528,726	\$1,471,165,316	\$1,127,636,590	\$11,440,200	1,325,615	295,381	-1,907,243	\$150,735,126	\$170,662,000

*Fields marked with an asterisk reflect funding of other recommendations. Their overlapping costs and benefits are excluded from the final total to avoid double counting.

+To reflect the possibility of independent, local implementation of funded projects, the total includes a local staffing cost for each county.

- a) Avoided greenhouse gas emissions are the median impact of shifting food waste away from landfills and do not include lifecycle impacts such as reduced or increased transportation.
- b) Based on the 2022 Social Cost of Carbon at a 2.5% discount rate.
- c) Based on the 2030 Social Cost of Carbon at a 2.5% discount rate.