

Significant Legislative Rule Analysis

WAC 246-203-130
a Rule Concerning Keeping of Animals

Revising the Section Title to
Domestic Animal Waste

August 1, 2022
Final

Introduction

The mission of the Washington State Board of Health (Board) is to provide statewide leadership developing and promoting policies that prevent disease and protect and improve public health for all people in Washington. Established by the Washington State Constitution in 1889, the Board plays an important role preventing disease and protecting public health and safety across the state. The Board offers a public forum to engage people in the public health system, develops environmental health and public health and safety rules, and promotes policies to protect and improve the public's health.

Board authority is established in state law (Revised Code of Washington, RCW) covering a wide range of issues such as communicable disease, childhood immunization, prenatal and newborn disease screening, drinking water, food safety, human remains, water recreation, animal waste, and school environmental health and safety. As a policymaking body, the Board adopts rules (Washington Administrative Code, WAC) to administer the law. The Washington State Department of Health and local health jurisdictions/officers implement and enforce Board rules, with authority and roles defined in each rule.

Among other powers and duties, [RCW 43.20.050\(2\)\(c\)](#) charges the Board with unique responsibility and authority to adopt rules and standards to prevent, control, and abate health hazards and nuisance related to the disposal of animal excreta, or animal waste. [WAC 246-203-130](#), Keeping of Animals, serves as the Board's rule on the handling and disposal of animal waste. Enforcement of the rule rests with local health officers.

The following sections of this analysis describe the intent and effect of the rule—revisions to [WAC 246-203-130](#)—along with features of the rulemaking process.

SECTION 1: Describe the rule, including a brief history of the issue, and explain why the rule is needed.

The purpose of this rulemaking is to modernize [WAC 246-203-130](#), Keeping of Animals, a long-standing Board rule with language dating back to the 1920s and 30s. This rule is one section of Board rules on General Sanitation, [chapter 246-203 WAC](#), covering such issues as nuisance, piggeries, disposal of dead animals, and use of common cup and towel. The chapter was codified as WAC in 1960, followed by administrative recodification in 1991. Despite its unique niche and authority, the rule has not undergone review or revision in recent decades while other related laws and regulations have been enacted, leaving a health and sanitation gap in the state regulatory structure for domestic animal waste.

In 2009, the Board received a petition from the Washington Association of Conservation Districts to amend the rule. The Board denied the specific petition and opted to file a CR-101, Preproposal Statement of Inquiry, [WSR 09-17-132](#), to more broadly update the rule. The

rulemaking stalled and ultimately resumed in 2017. In 2018, Board staff completed a background report¹ to help guide the rulemaking and restarted work on the rule with emphasis on outreach to interested parties, research, and rule writing. In fall 2019, the Board filed a new CR-101, [WSR 19-21-018](#), to better align the rulemaking with Board policy direction. In early 2020, the Board distributed a draft rule for public review, processed the feedback, and revised the draft. In November 2020, staff updated the Board on the rulemaking. The Board directed staff to file a CR-102, Proposed Rulemaking.

Staff gave a final briefing to the Board at its meeting on March 9, 2022. The Board filed the CR-102, [WSR 22-08-003](#), on March 23, 2022 for public review and comment and held a public hearing on the proposed rule at its meeting on June 8, 2022. The Board adopted the rule and accompanying amendments and directed staff to file a CR-103, Rulemaking Order.

Domestic animal waste presents many challenges that are often well-managed by people. However, situations arise where waste accumulates or is mishandled in ways that create a nuisance or health hazard and action is needed to address and correct the problem. The adopted rule establishes minimum standards intended to help prevent, control, and abate health hazards and nuisance associated with the handling and disposal of domestic animal waste. This includes waste from livestock animals such as horses and cattle, and waste from nonlivestock animals such as dogs and cats.

The rule includes standards to:

- Avoid unsanitary accumulations of waste in containment areas where animals are held or housed for a period of time;
- Prevent contamination of other people's property, drinking water sources, and surface water bodies with potential to affect human health;
- Promote safe handling and disposal of nonlivestock waste; and
- Promote safe stockpiling of livestock waste.

The rule is not an operational Board rule involving ongoing implementation and frontline regulation of facilities and systems (e.g., Board rules for food establishments, shellfish operations, water recreation facilities, on-site sewage systems, and drinking water systems). Instead, like the companion sanitation rule on disposal of dead animals, [WAC 246-203-121](#), the rule sets animal waste standards for people to follow that may be locally enforced by a local health officer if needed.

The rule aims to focus squarely on domestic animal waste. It intersects other rules and practices associated with solid waste and manure management but largely stops short of waste and beneficial-use streams regulated by other agencies. Due to the narrow focus on animal waste, the rule includes a title change from Keeping of Animals to Domestic Animal Waste to more accurately reflect and carry out Board authority regulating animal excreta.

¹ Washington State Board of Health. 2018. [Keeping of Animals Background and Policy Recommendations of the Washington State Board of Health for Revising WAC 246-203-130](#).

SECTION 2: Is a Significant Analysis required for this rule?

Board staff evaluated the rule and determined that it includes significant provisions subject to requirements of [RCW 34.05.328](#). The rule requires a significant analysis, including analysis of probable costs and benefits in Section Five. The rule modernizes the existing rule with contemporary language, standards, and rule structure. The following table lists provisions of the rule the Board determined are non-significant and are exempt from analysis based on RCW 34.05.328(5)(b) and (c).

Table 1: Rule subsections, subdivisions, items, and subitems determined to be non-significant

Rule Provision	Description	Rationale for Determination
WAC 246-203-130(1)	Establishes the purpose and applicability of the rule.	Interpretive language that sets rule structure.
WAC 246-203-130(2)	Establishes the definitions of terms used in the rule.	Interpretive language that sets rule structure.
WAC 246-203-130(3) preface only	Introduces the standards of the rule, defers to more stringent standards in law, and excludes certain diffuse practices.	Interpretive language that sets rule structure and clarifies applicability.
WAC 246-203-130(3)(b)	Introduces the standards of the subdivision.	Interpretive language that sets rule structure and clarifies applicability.
WAC 246-203-130(3)(b)(ii)	Requires the handling of domestic animal waste to prevent contamination of drinking water sources.	This standard revises existing language of the rule, WAC 246-203-130(3) , without changing its effect.
WAC 246-203-130(3)(c)	Introduces the standards of the subdivision.	Interpretive language that sets rule structure and clarifies applicability.
WAC 246-203-130(3)(d)	Introduces the standards of the subdivision.	Interpretive language that sets rule structure and clarifies applicability.
WAC 246-203-130(3)(d)(ii)	Limits storage of stockpiled livestock waste to one year.	This standard incorporates by reference, without material change, standards/rules of another Washington state agency. It incorporates a requirement of the state solid waste rules, WAC 173-350-320(2)(2) , limiting the duration of storage of agricultural waste piles to one year.
WAC 246-203-130(3)(d)(iii)(A)	Requires siting stockpiled livestock waste one hundred feet or more from a drinking water well.	This standard incorporates by reference, without material change, standards/rules of the Board and another Washington state agency. WAC 246-290-135(2)(b) and WAC 246-291-125(5)(b) require a sanitary control area radius of 100 feet from public drinking water wells and WAC 173-160-171(3)(b)(v) requires a setback of one hundred feet from all wells.

WAC 246-203-130 (3)(d)(iii)(B)	Requires siting stockpiled livestock waste two hundred feet or more from a public drinking water spring.	This standard incorporates by reference, without material change, standards/rules of the Board. WAC 246-290-135(2)(b) , requires a sanitary control area radius of two hundred feet from a public drinking water spring.
WAC 246-203-130 (3)(d)(iii)(C)	Requires siting stockpiled livestock waste outside the sanitary control area of a public drinking water system if larger than the preceding setbacks.	This standard incorporates by reference, without material change, standards/rules of the Board. WAC 246-290-135(2)(c) and WAC 246-291-125(5)(c) require a sanitary control area adequate to protect a public drinking water source.
WAC 246-203-130 (3)(d)(iii)(D)(I)	Requires siting stockpiled livestock waste one hundred feet or more from a surface water body unless the surface water body is upgradient or is protected by a levee or other physical barrier	Interpretive language that clarifies that the standard does not apply when surface water bodies are upgradient or protected by a levee or other physical barrier.
WAC 246-203-130(4)	Establishes structure and authority of local health officers to investigate and enforce violations of the rule.	Interpretive language that sets rule structure.

SECTION 3: Clearly state in detail the general goals and specific objectives of the statute that the rule implements.

As described in the background report for this rulemaking, animal waste poses human health and environmental health risks via many exposure pathways, including direct exposure and fecal-oral transmission of disease.¹ Proper handling and disposal of animal waste are long-standing sanitation and public health safeguards.^{2,3} [RCW 43.20.050\(2\)\(c\)](#) charges the Board with unique responsibility and authority to adopt rules and standards to prevent, control, and abate health hazards and nuisance related to the disposal of animal excreta. By extension, animal waste handling is integral to animal waste disposal.

Other state agencies have complementary authority, but no agency shares this core charge to regulate animal waste for the purpose of sanitation, nuisance, and health. [WAC 246-203-130](#), Keeping of Animals, serves as the Board’s rule on the handling and disposal of animal waste. With language dating back nearly a century, the rule is overdue for review and revision to address modern needs to safely handle and dispose of animal waste.

The adopted rule complements related state rules that are implemented and enforced by other agencies. For example, the rule brushes up against solid waste and manure management rules,

² World Health Organization. 2018. [Guidelines on Sanitation and Health](#).

³ Penakalapati, G., J Swarthout, M. J. Delahoy, L. McAliley, B. Wodnik, K. Levy, and M. C. Freeman. 2017. [Exposure to Animal Feces and Human Health: A Systematic Review and Proposed Research Priorities](#).

but largely stops short of these waste and beneficial-use streams regulated by other agencies. The rule establishes expectations and standards for a few key control points at the front end of the waste stream when the waste is first excreted by animals and is first handled by people. Due to the intersection with other rules, the rule incorporates and reinforces established standards of other rules and codes.

SECTION 4: Explain how the Board determined that the rule is needed to achieve these general goals and specific objectives. Analyze alternatives to rulemaking and the consequences of not adopting the rule.

The existing rule is outdated and little used due mainly to its archaic status. Working in close association with the Washington State Department of Health, the Board is expected to regularly review and update its rules. When faced with the rulemaking petition in 2009, the Board decided to initiate rulemaking and explore ways to modernize the rule rather than to rescind it or to leave it unchanged.

This rulemaking is based on research outlined in the background report evaluating the state/local regulatory structure for animal waste in Washington.¹ The research helped identify needs and guide rulemaking to avoid conflict with requirements in other laws and rules. The rulemaking aimed to fill a unique niche and equip local health officers with an updated tool to address situations where domestic animal waste presents a notable health hazard or nuisance.

The language, standards, and structure of the adopted rule have been modernized to suit the needs of local health jurisdictions and to complement related roles of other agencies on such issues as solid waste management and manure management. The rule is intentionally short and simple, and it incorporates standards of other rules and codes to help bolster regulatory consistency.

As noted above, alternatives to rulemaking were to leave the existing rule in place or to rescind it. The Board indicated no interest in these options and instead directed staff to modernize its sanitation rule for animal waste. The Board believes it has an obligation to address its unique statutory charge. If not revised, the outdated rule would continue to leave a gap in the regulatory structure administering state law.

The adopted rule updates and establishes much needed structure and basic standards for the safe handling of animal waste. At the same time, the rule substantially narrows the scope of the existing rule to focus more directly on animal waste, not animal keeping. As needed, the rule can be judiciously enforced to address and correct local violations.

SECTION 5: Explain how the Board determined that the probable benefits of the rule are greater than the probable costs, taking into account both the qualitative and quantitative benefits and costs and the specific directives of the statute being implemented.

This section assesses new incremental costs/benefits of the rule. The rule applies broadly to “person”, which is defined in the rule and includes individuals as well as companies, corporations, and other businesses. This analysis includes information from staff research as well as responses to a survey of the rule’s cost impact on Washington businesses. This analysis does not take into account already existing practices and the cost of those practices relative to the rule.

Cost Definitions

Incremental costs are defined as costs that are in addition to costs that already exist. One-time costs are costs that occur only once, such as a one-time purchase of equipment. Annual costs are costs that occur on a recurring basis once per year. Recurrent costs are costs that occur multiple times for a specified interval. Opportunity cost is the potential cost (both monetary and nonmonetary) given up by not selecting an alternative action.

Cost Survey

The cost survey asked Washington businesses to determine if they face any new costs as a result of this rule and if so to then identify and describe one-time costs and recurring annual costs to comply with the significant standards of the rule. Potential costs include equipment, supplies, material, labor, professional services, increased administration, and other costs.

Board staff twice distributed the cost survey via e-mail to Washington businesses covering 16 North American Industry Classification System (NAICS) codes. The survey went to 800 Washington businesses in the first distribution followed by 1,000 businesses in the second distribution. The second distribution included the original 800 businesses. The survey covered such businesses as horse stables, livestock producers, dog kennels/groomers, animal hospitals, animal breeders, livestock markets, and equestrian centers. The Board posted the cost survey on its rulemaking webpage for a total of six weeks. The Board asked approximately 30 organizations and one state agency to help distribute the survey to raise awareness of the rulemaking and to get broader reach with the survey.

The Board received a total of 41 responses to the cost survey. Cost survey results included 4 businesses that identified cost impacts, 24 businesses that indicated no costs, and 13 businesses with unspecified responses.⁴ In summary, 37 of 41 respondents across a number of industries identified no cost impact or provided no cost information. Results of the cost survey were analyzed and included in the section-by-section analysis below.

In addition to survey results described below, one respondent to the survey repeated the following for several standards:

⁴ Unspecified responses include responses that did not return the cost survey, did not specify dollar amounts, or provided non-specific comments (e.g. "not sure how it would impact me").

- A cattle/dairy farming facility identified a one-time cost of \$500 and recurring annual costs of \$2,000 for record keeping, legal counsel, rule analysis, meeting with interested parties, and other miscellaneous compliance needs.

The Board was unable to determine whether the respondent was indicating an estimate of overall cost impacts of the rule or cost impacts of individual standards. The Board considered the costs only once in the Significant Analysis and for each relevant standard of the Small Business Economic Impact Statement (SBEIS) but notes that this could be duplication of costs and a potential overestimate of costs to comply with individual standards.

Correction to Cost-Benefit Analysis

While drafting the preliminary Significant Analysis and SBEIS for the CR-102, Proposed Rulemaking, Board staff incorrectly determined that the rule incorporated by reference an existing requirement in [chapter 173-350 WAC](#), Solid Waste Handling Standards. As a result, the Board incorrectly exempted the odor/pest control standard in WAC 246-203-130(3)(d)(i) from the preliminary rule analyses. The final documents have been amended to include and to assess the standard for stockpiled livestock waste to “apply control measures as reasonable to minimize and reduce odors and attraction of flies and rodents.” The final analyses also reflect clarifying edits to the language of this standard adopted by the Board.

WAC 246-203-130(3)(a) Collect domestic animal waste at intervals sufficient to maintain sanitary conditions in containment areas.

Description: This standard requires people to collect animal waste frequently enough to avoid unsanitary accumulations in containment areas. In other words, people must collect waste often enough so that it does not badly accumulate and become a health risk. The rule defines “containment area” as an area where domestic animals are held, housed, or kept for a period of time, including but not limited to stables, corrals, confinement areas, kennels, pens, and yards. The standard applies to waste from livestock and nonlivestock animals.

Costs: While the Board assessed and included costs to comply with the standard, it is likely that many individuals and businesses already apply practices and own equipment to comply with the standard. The most probable new costs are labor and equipment costs. There may be other new costs if collection practices change significantly. Of the survey responses, one included costs to maintain sanitary conditions and one identified costs for unspecified needs and concerns related to compliance/enforcement. A third respondent identified past and recurring costs not directly attributed to the standard (see below).

In addition, Board staff researched practices and costs of equipment used to collect domestic animal waste. Equipment, methods, and costs vary significantly. Refer to Table 2 for sample equipment and representative costs, sorted roughly by scale. Equipment needs and costs for industrial operations can be significantly higher. Regardless of scale, some equipment can be found and purchased secondhand at lower costs.

On the small end of the scale, disposable pet waste bags can be used to collect waste in areas where dogs are contained and can also be used offsite for walks and other activities. Tools such as a dog pooper scooper, shovel, and muck/pitch/stall fork can be used to collect waste and

soiled bedding from such animals as dogs and horses, and—in the case of livestock waste—to ultimately transport it for spreading, composting, or storage. In contrast, smaller droppings by other animals may not allow regular collection and may instead involve regular removal and replacement of soiled bedding, and possibly use of other tools such as rakes and hand scoops for smaller areas. Wheelbarrows, buckets, and muck carts can be used to move modest volumes of waste and soiled bedding.⁵

For larger facilities and volumes of animal waste, equipment options are very diverse and range significantly in cost and scale. This includes utility vehicles; front-end loaders; tractors outfitted with loaders, buckets, and scrapers; and other companion equipment such as manure spreaders, dumpsters, and various other containers/structures as optional means for holding or handling the waste. Equipment such as spreaders may be separate from the waste collection or may be integral to it depending on the methods. Facilities may have custom design features and wash systems to empty and clean containment areas and move larger waste volumes. Depending on the animals and nature of the facility, time and labor to meet recommended cleaning frequencies and maintain sanitary conditions can vary significantly (e.g., daily, monthly, or even longer intervals).

Table 2: Representative costs of common waste collection equipment

Small-Scale Items ⁶	Cost Range	Large-Scale Items ⁷	Cost Range
Disposable pet waste bag	\$.02 - \$.20	Manure Spreader (small)	\$1,000 - \$2,400
Dog waste pooper scooper	\$10 - \$50	Manure Spreader (small/med)	\$2,000 - \$14,000
Hand scoop	\$5 - \$10	Bobcat skid-steer loader	\$28,000 - \$65,000
Shovel	\$15 - \$40	Kubota tractor/loader	\$10,000 - \$50,000
Muck/pitch fork	\$25 - \$90	Nortrac tractor/loader	\$19,000 - \$24,000
Muck bucket	\$20 - \$40	Deere compact utility tractor	\$18,000 - \$40,000
Wheelbarrow	\$55 - \$170	Deere Gator utility vehicle	\$10,000 - \$28,000
Muck/utility cart	\$55 - \$800	Deere large utility tractor	\$115,000 and up
Hydraulic dump cart	\$2,900 and up	Added attachments	variable

In the cost survey, three respondents indicated the following costs associated with this standard:

- A goat/sheep farming facility identified recurring annual costs of \$500 for labor, fuel, and equipment;
- A pig farming/wholesale facility identified a one-time cost of \$58,000 and recurring annual costs of \$58,000 for unidentified needs and concerns related to compliance/enforcement; and
- A horse boarding/riding/instruction facility identified a past one-time cost of \$9,000 to remove a manure pile and ongoing manure disposal costs of \$5,000/month to comply with county regulation (no indication of new costs due to the standard).

Benefits: All technical material on animal waste emphasizes the benefits and need for regular waste collection to maintain sanitary conditions, to protect animal health and well-being, and to

⁵ Rutgers University Cooperative Extension, [Managing Manure on Horse Farms: Spreading and Off-Farm Disposal](#).

⁶ [Tractor Supply](#), [Chewy](#), [Pet Waste Eliminator](#), [Uline](#), [System Equine](#).

⁷ [Tractor Supply](#), [Northern Tool and Equipment](#), [Millcreek Spreaders](#), [A2Zvehicle.com 2021 Bobcat Skid Steer Loader Price List](#), [Kubota](#), [TractorsInfo.net. 2021 John Deere tractor price list](#).

prevent and reduce related aesthetic and environmental health problems such as runoff, leaching, odors, and pests/vectors.^{3,8,9,10} With livestock, waste collection is generally integral to mud management for animal health.^{11,12} Livestock waste collection is also often integral to composting and storage, and ultimately beneficial use of the material by efficiently recycling nutrients and structure back into the soil. This can financially benefit businesses and people who receive or purchase the material. Regular waste collection protects property values and prevents problems from developing that can require costly solutions such as large-scale cleanup and penalties for violations.

WAC 246-203-130(3)(b) Handle domestic animal waste to prevent deposition, leaching, and runoff to (i) another person’s property, and (iii) surface water bodies used for swimming, shellfish harvesting, or other activity with potential to affect human health.

Preface: These two overarching standards are addressed jointly because the associated practices, pollution pathways, and possible impacts are similar and would be largely duplicative if discussed separately. These standards potentially involve an array of waste handling practices highlighted in this and other sections of the analysis. The following describes practices in general terms and leans on related parts of this cost-benefit analysis. The type and amount of animal waste can vary significantly depending on the animals and scale and type of facility/property. The spectrum of settings includes residential yards, small-scale lifestyle farms, and commercial kennels, stables, veterinary clinics, auction markets, equestrian centers, and livestock operations.

Description: The standard of (i) requires people to handle animal waste to avoid and prevent deposition, leaching, and runoff to another person’s property. Typically, this would apply to neighboring or adjacent properties, but conceivably could apply to more distant properties depending on natural transport mechanisms such as wind and water. The standard of (iii) requires people to handle animal waste to avoid and prevent deposition, leaching, and runoff to surface water bodies where there are uses and activities with potential to affect human health. Typically, this would apply to surface water bodies contained on, flowing through, or adjacent to properties with domestic animal waste, but could apply to more distant water bodies depending on natural transport mechanisms such as wind and water. Both standards apply broadly to animal waste handling and are not limited to practices listed in the rule.

Costs: The costs to comply with the standards are indeterminate as they occur on a case-by-case basis. Sample practices listed below illustrate the potential types of measures that can be employed to prevent or address property or surface water impacts associated with deposition, leaching, and runoff.

⁸ USDA Natural Resources Conservation Service. 2011. [Part 651, Agricultural Waste Management Field Handbook, Chapter 9 Agricultural Waste Management Systems.](#)

⁹ LA County Public Health. 2011. [The Link Between Animal Feces and Zoonotic Disease.](#)

¹⁰ Pell, A. N. 1997. [Manure and Microbes: Public and Animal Health Problem?](#)

¹¹ Washington State University, Whatcom County Extension. 2016. [Get Ready: Winter Livestock Management.](#)

¹² Washington State University Extension Clark County. 2005. [Keeping Clean Water Clean and Reducing Mud, Improving Drainage.](#)

For nonlivestock waste, handling costs are typically limited to collection and disposal (see analysis of these respective standards under WAC 246-203-130(3)(a) and WAC 246-203-130(3)(c)(ii)). In situations with property or surface water impacts, the controls and costs are limited to collection, cleanup, and disposal—not broader issues involving management and reuse of the waste.

Livestock waste can involve larger volumes and the practices and pollution pathways are more numerous. Illustrations include, but are not limited to, material blown from manure compost windrows, misapplication from manure spreaders/sprinklers, runoff from animal sacrifice areas, and leaching from manure stockpiles. Controls and costs to prevent deposition, leaching, and runoff focus mainly on waste collection, storage, and use, but also draw in other related issues and practices such as animal grazing, mud management, pasture management, and drainage control.^{12,13,14,15,16,17}

Large commercial livestock operations generally require more sophisticated waste management systems to process and reuse animal waste. The functions of a waste management system include any or all of the following—production, collection, transfer, storage, treatment, and utilization. Such systems can involve substantial costs especially for large-scale industrial operations. Numerous technical publications define and itemize the interrelated components and practices of such systems.⁸

Costs to prevent or mitigate deposition, leaching, and runoff to properties and surface water bodies occur on a case-by-case basis across a spectrum of possible scenarios and scales of operation. The financial burden to comply would range from nominal costs for minor waste volumes to potentially significant costs for major volumes.

In the cost survey, one respondent indicated the following costs associated with this standard:

- A pig farming/wholesale facility identified a one-time cost of \$48,000 and recurring annual costs of \$27,000 for unidentified needs and concerns related to legal counsel and agency consultations.

Benefits: Preventing deposition, leaching, and runoff to properties and surface water bodies is beneficial to personal and public health, property values, and potentially affected activities and businesses.¹⁸ Practices that prevent contamination reduce potential exposure and impacts of pathogens and nutrients on surface water bodies and other associated costs such as harmful algal blooms and closure of swimming beaches and shellfish harvest areas. In addition to nutrients, waste from domestic animals may contain pathogens and parasites harmful to human (and

¹³ Rutgers University Cooperative Extension. 2004. [Agricultural Management Practices for Commercial Equine Operations](#).

¹⁴ Washington State University Extension Clark County. Undated. [Living on the Land: Reduce Mud & Keep Water Clean, Sacrifice Areas](#).

¹⁵ Northeast Recycling Council, Inc. 2019. [Manure Management for Small and Hobby Farms](#).

¹⁶ Oregon State University Extension Service. 2019. [Managing Small-Acreage Horse Farms in Western Oregon and Western Washington](#).

¹⁷ Oregon State University Extension Service. 2007. [Managing Small-Acreage Horse Farms in Central and Eastern Oregon](#).

¹⁸ University of Georgia Extension. 2014. [Coexisting with Neighbors: A Poultry Farmer's Guide](#).

animal) health, including Campylobacter, Cryptosporidium, E. coli, Giardia, Toxoplasma gondii, Leptospira, Salmonella, and more.^{19,20,21,22} The pathogens can cause a variety of symptoms and illnesses. Protection against these pathogens is an essential sanitary safeguard for public health and community well-being.

WAC 246-203-130(3)(c)(i) Hold nonlivestock waste in a watertight container if stored for more than one day prior to proper disposal.

Preface: Aside from the standards for safe storage and disposal of nonlivestock waste in WAC 246-203-130(3)(c)(i) and (ii), other alternate storage/disposal practices such as piling, burying, and flushing nonlivestock waste either raise concerns, are ill-advised, or may even be illegal under certain circumstances.^{23,24,25,26,27,28,29,30}

Description: This standard requires people to hold waste from nonlivestock animals such as dogs and cats in a watertight container if stored for more than a day prior to disposal. The intent is to prevent open-air, outdoor exposure and possible saturation and runoff of the waste. Storage options do not include commercial devices such as pet waste digesters, in-ground systems, and composters that are not designed for watertight storage.

Costs: While the Board assessed and included costs to comply with the standard, it is likely that many individuals and businesses already apply practices and own equipment to comply with the standard. The most probable new costs are equipment and supplies for container storage and related labor. In the cost survey, no respondents indicated costs associated with this standard. One respondent, a dog boarding facility, noted potential costs if required to purchase special waste bins or dumpsters to replace existing waste bins provided by its private waste disposal company.

Board staff researched representative costs of common equipment and supplies (refer to Table 3). Storage may occur separate from disposal or it may be integral to the methods and costs of disposal. Storage costs vary depending on the animals, waste volumes, and methods.

Options for watertight containers mainly involve the use of plastic bags in combination with enclosed trash bins. For very small volumes, waste may be held briefly in disposable pet waste bags. People may also use other small plastic bags for small volumes at low cost. For larger

¹⁹ Centers for Disease Control and Prevention, [Healthy Pets, Healthy People](#).

²⁰ Canadian Public Health Association, [Human Diseases Transmitted by Dog Poop](#).

²¹ University of Minnesota Extension, [BMPs for Pathogen Control in Manure](#).

²² Sobsey, M. D., L. A. Khatib, V. R. Hill, E. Alocilja, and S. Pillai. 2006. [Pathogens in Animal Wastes and the Impacts of Waste Management Practices on their Survival, Transport and Fate](#).

²³ Snohomish County Public Works. 2018. [Safe Pet Waste Disposal Methods & Frequently Asked Questions](#).

²⁴ Whatcom County. Undated. [Pet Waste FAQs and Myth Busters](#).

²⁵ Seattle Public Utilities, [What to Do with Pet Waste](#).

²⁶ Kitsap County, [Pet Waste](#).

²⁷ Clark County, [Pet Waste](#).

²⁸ City of Bothell, [How to Safely Dispose of Pet Waste](#).

²⁹ Thurston County Public Health and Social Services. Undated. [Don't Let Your Pet Pollute! How to Safely Dispose of Pet Waste](#).

³⁰ Chuck Matthews, Washington Department of Ecology. Email to author, February 24, 2021.

volumes, standard trash bags and bins are typically used. Depending on the method and volume, multiple containers may be needed. In addition to these generic methods, PetFusion offers an outdoor waste station for cat litter for \$50 and an outdoor dog waste station for \$86.³¹ People may also devise other custom container systems.

Table 3: Representative costs of common waste storage bags and bins³²

Trash Bags	Cost Range	Trash Bins	Cost Range
Disposable pet waste bag	\$.02 - \$.20	5-gal bucket and lid	\$5 - \$15
13-gallon trash bag	\$.18 - \$.25	32-gal trash bin	\$22 - \$65
33-gallon trash bag	\$.32 - \$.63	45-gal to 96-gal bin	\$35 - \$320
DoggiePot receptacle liner (15-gal to 55-gal)	\$.60 - \$1.10	Pet Waste Eliminator 10-gal trash bin	\$90
Pet Waste Eliminator 10-gal trash liner	\$.32		

Benefits: Safe, watertight storage prevents saturation and runoff, and, in turn, helps minimize exposure and health risks. Waste from nonlivestock animals, particularly dogs and cats, may contain bacteria and parasites harmful to human (and animal) health, including *Campylobacter*, *Cryptosporidium*, *E. coli*, *Giardia*, *Leptospira*, roundworms, tapeworms, *Salmonella*, *Toxoplasma gondii*, soil-transmitted helminth (STH) infection, and more.^{3,9,19,20,22} Secure storage prevents exposure to the agents that can cause a variety of illnesses, infections, and symptoms such as diarrhea, abdominal pain, cramping, fever, vomiting, and other flu-like symptoms. Protection against these diseases and infections benefits personal and public health and avoids cost impacts to individuals, businesses, and activities that depend on clean water and sanitary conditions.

WAC 246-203-130(3)(c)(ii) Bag and dispose of nonlivestock waste as solid waste.

Description: This standard requires people to bag and dispose of waste from nonlivestock animals as solid waste. While this standard applies to waste from all nonlivestock animals, dog waste is the primary concern. The average dog produces three quarters of a pound of waste per day—or 274 pounds per year.³³ Snohomish County and Whatcom County estimate their respective dog populations produce about 64 tons and 19 tons of waste per day.^{23,24}

Costs: While the Board assessed and included costs to comply with the standard, it is likely that many individuals and businesses already apply practices to comply with the standard. Probable new costs are equipment and supplies for waste holding, solid waste disposal service, and related labor. One respondent to the cost survey—a goat/sheep farming facility—identified a recurring annual cost of \$100 for bags and collection labor. The standard does not apply to goat, sheep, and other livestock waste so the Board assumes this cost estimate is for waste from nonlivestock associated with the business or business owner.

³¹ [Chewy](#) and [Amazon](#).

³² [MSC Industrial Direct Co.](#), [Amazon](#), [Zoro](#), [Walmart](#), [Pet Waste Eliminator](#), [Ace Hardware](#), and [Lowe's](#).

³³ USDA Natural Resources Conservation Service. 2005. [Composting Dog Waste](#).

Board staff researched representative costs for waste holding and disposal. Costs vary depending on the animals, waste volumes, disposal methods, and solid waste services in different areas of the state. People may store and dispose of waste in separate steps, or they may be integral. Refer to Table 3 for costs of common storage material (trash bags and trash bins).

Municipalities across the state provide curbside residential and commercial solid waste collection/disposal services. Complementing this, private solid waste companies serve many municipalities and unincorporated areas of the state. These services are further supplemented by self-haul disposal options at transfer stations and landfills in many locales. Specific services and rate structures vary significantly based on volume and type of material, size and type of container, collection frequency, and other factors.

Table 4 lists sample costs of solid waste services across the state. Municipalities and private companies have different approaches and policies regarding trash cans, such as selling and delivering cans for use or furnishing and retaining ownership of containers. Service providers offer numerous optional services and rates not captured in the table.

Table 4: Sample costs of solid waste services in Washington

Jurisdiction	Provider	Type	Unit	Cost ³⁴	Frequency
Municipal Curbside Collection/Disposal Service					
City of Yakima ^{35,36}	Yakima	residential/ commercial	32-gal	\$19	weekly
			96-gal	\$22	
			2-yard	\$112	
City of Seattle ^{37,38}	Seattle	residential	32-gal	\$41	weekly
			64-gal	\$82	
			96-gal	\$123	
		commercial	32-gal	\$56	
			64-gal	\$109	
			96-gal	\$128	
City of Richland ^{39,40}	Richland	residential	96-gal	\$18	weekly
			100-gal	\$20	weekly
		commercial	2-yard	\$83	
City of Tacoma ⁴¹	Tacoma	residential	30-gal	\$24	biweekly
			60-gal	\$48	
			90-gal	\$72	
		commercial	30-gal	\$40	weekly
			60-gal	\$60	
			90-gal	\$82	
		2-yard	\$230		
Private Curbside Collection/Disposal Service					
Asotin County ⁴²	Naslund Disposal	residential	64-gal	\$20	weekly

³⁴ All costs are monthly rates except self-haul landfill tonnage rates.

³⁵ City of Yakima, [Automated Garbage Collection Rates](#).

³⁶ City of Yakima, [Permanent Metal Bins](#).

³⁷ Seattle Public Utilities, [Monthly Residential Garbage Can Rates](#).

³⁸ Seattle Public Utilities, [Monthly Commercial Garbage Container Rates](#).

³⁹ City of Richland, [Residential Collection Fees](#).

⁴⁰ City of Richland, [Commercial Service Fees](#).

⁴¹ City of Tacoma, [Residential Curbside Collection and Commercial Garbage Rates](#).

	Service		96-gal	\$24	
North King County ⁴³	Republic Services	residential	32-gal 64-gal 96-gal	\$15 \$25 \$36	weekly
City of North Bend ⁴⁴	Republic Services	residential	32-gal 64-gal 96-gal	\$23 \$37 \$49	weekly
City of Port Orchard ⁴⁵	Waste Management	residential	35-gal 64-gal 96-gal	\$23 \$27 \$33	weekly
Municipal Self-Haul Landfill Service					
Thurston County ⁴⁶	self-haul	landfill	ton	\$119	N/A
Grant County ⁴⁷	self-haul	landfill	ton	\$50	N/A
Whitman County ⁴⁸	self-haul	landfill	ton	\$114	N/A
Clark County ⁴⁹	self-haul	transfer station	ton	\$98 plus \$10 fee	N/A
Jefferson County ⁵⁰	self-haul	transfer station	ton	\$163	N/A

Benefits: Methods and materials that securely bag and dispose of nonlivestock waste as solid waste offer the safest disposal option and minimize exposure and health risks. Waste from nonlivestock animals may contain bacteria and parasites harmful to human (and animal) health, including *Campylobacter*, *Cryptosporidium*, *E. coli*, *Giardia*, *Leptospira*, roundworms, tapeworms, *Salmonella*, *Toxoplasma gondii*, soil-transmitted helminth (STH) infection, and more.^{3,9,19,20,22} Safe, secure disposal prevents exposure to agents that can cause a variety of illnesses, infections, and symptoms such as diarrhea, abdominal pain, cramping, fever, vomiting, and other flu-like symptoms. Protection against these diseases and infections benefits personal and public health and avoids cost impacts to individuals, businesses, and activities that depend on clean water and sanitary conditions.

WAC 246-203-130(3)(d)(i) For stockpiled livestock waste, apply control measures as reasonable to minimize and reduce odors and attraction of flies and rodents.

Description: Stockpiling is short-term piling of stackable waste from livestock, typically using temporary, non-structural measures.⁵¹ If waste from livestock is stockpiled for later use or disposal, this standard encourages people to apply control measures as reasonable to minimize and reduce odors and attraction of flies and rodents. The standard mirrors—but does not incorporate by reference—requirements for solid waste handling in [chapter 173-350 WAC](#).

⁴² Naslund Disposal Service, [Asotin County Residential Rates](#).

⁴³ Republic Services, [Curbside Garbage Collection, Unincorporated North King County Residential Rates](#).

⁴⁴ Republic Services, [Curbside Garbage Collection, North Bend Residential Rates](#).

⁴⁵ Waste Management, [City of Port Orchard Curbside Collection Rates](#).

⁴⁶ Thurston County, [Waste and Recovery Center at Hawks Prairie](#).

⁴⁷ Grant County, [Solid Waste Landfill Disposal Fee Schedule](#).

⁴⁸ Whitman County, [Solid Waste Transfer Site and Landfill](#).

⁴⁹ Clark County, [Self-Haul Options](#).

⁵⁰ Jefferson County, [Solid Waste Division 2021 Fee Schedules](#).

⁵¹ USDA Natural Resources Conservation Service. 2020. [Conservation Practice Overview, Short-Term Storage of Animal Waste \(Code 318\)](#).

Costs: It is likely that many individuals and businesses already apply practices to address the standard. For people who currently stockpile livestock waste or plan to do so in the future, probable new costs would involve material, supplies, and labor for measures to control and minimize odors and pests. As with other rule standards, scale and type of operation are significant factors determining potential costs and suitability of optional control measures.

Odors are inherent characteristics of livestock manure, and attraction of pests is a common challenge associated with stockpiling. Control measures aim to manage these matters to maintain sanitary conditions and to minimize related effects. Measures can be active or passive, can be highly technical or relatively simple, and on large operations are often applied as part of comprehensive manure management and integrated pest management.

The following practices are among the many methods people may consider and apply to help manage and minimize odors and pests associated with livestock waste stockpiles. Most practices are passive (e.g., proper siting and timing) and low or nominal in cost.^{13,15,17,52,53,54,55,56,57,58,59,60,61} Practices include, but are not limited to:

- Site piles away from and downwind of neighboring residences and residential areas.
- Keep stockpiles as dry as possible to minimize odors and breeding ground for flies (the wet upper layer).
- Use covers such as tarps and roofed stacking structures to help keep stockpiles dry. (Refer to Table 5 for representative costs of tarps and Table 6 for sample costs of roofed stacking structures.) Design and scale are significant factors in the costs of covers.
- Cover freshly added manure in storage piles with bedding, straw, or hay.
- Try not to use insecticides to control flies. Naturally occurring fly predators (tiny, non-stinging wasps and parasites) are beneficial to the pile and pest control.
- Add new waste to piles as a block of material to minimize fresh manure surface exposure.
- Time stockpiling and related use/disposal to minimize storage and related control needs.
- Try to remove stockpiles during cold weather before fly breeding season.
- When removing piles, leave a few of inches of dry manure over the bottom of the storage area to provide a population of fly parasites and predators.
- Use trees and other vegetation as visual barriers for piles to reduce material blown from piles when dry, and to help disperse odors.

⁵² USDA Natural Resources Conservation Service, [Odor Control, Conservation Solutions for Your Pennsylvania Farm](#).

⁵³ Penn State Extension, [Horse Stable Manure Management](#).

⁵⁴ Rutgers University Cooperative Extension, [Storing Manure on Small Horse and Livestock Farms](#).

⁵⁵ Koelsch, Rick. 1993. [Odor Control from Livestock Waste Handling Systems](#).

⁵⁶ Michigan State University Extension, [Horse Manure Management Plans](#).

⁵⁷ Colorado State University and USDA Natural Resources Conservation Service. 2018. [Manure Management for Small Acreages](#).

⁵⁸ University of Nebraska-Lincoln Institute of Agriculture and Natural Resources, [Manure Stockpiles: Mind Your Manners](#).

⁵⁹ Michigan State University, [An 8-Step Process for Developing a Horse Manure Management Plan: Part 7 – Odor Management](#).

⁶⁰ Livestock and Poultry Environmental Learning Community, [Storing Manure on Small Farms: Why Do Small Farms Need Manure Storage?](#)

⁶¹ University of Massachusetts Extension, [Odor Control](#).

- Manage feed and facilities to minimize attraction of rodents.

Benefits: Measures that minimize odors and pests associated with stockpiles help create a healthier environment for people and animals and help lessen tensions and potential nuisance claims in neighborhoods and communities. In keeping with the other standards, good stockpiling practices that help minimize odors and pests are integral to good overall manure management. Time and money spent on proper siting and management of stockpiles help maximize economic return on the manure resource while minimizing conflict and time spent on impacts and complaints with odor and pest issues.⁶² The practices listed above and other practices recommended by conservation agencies for minimizing odors and pests are the types of reasonable practices that prevent nuisance.

WAC 246-203-130(3)(d)(iii)(D) Site stockpiled livestock waste one hundred feet or more from a surface water body. (see exception that follows)

Description: If waste from livestock is stockpiled for later use or disposal, this standard requires people to site the stockpile one hundred feet or more from a surface water body. The standard assumes unmitigated stockpiling on bare ground on a short-term basis between collection and use. The exception in WAC 246-203-130(3)(d)(iii)(D)(II), discussed and analyzed separately below, allows reduction of the setback when practices are applied to mitigate runoff and leachate.

For people not currently meeting this standard, the cost to comply would not involve the cost of removing an existing pile (unless there are impacts under WAC 246-203-130(3)(b)(iii)), but rather the cost of possibly siting future stockpiles further away from surface water bodies. While this 100-foot setback appears in various technical references, the standard is based mainly on Natural Resources Conservation Service (NRCS) Code 318 which recommends locating stockpiles “at least 100 feet from all drainageways.”⁶³ Although NRCS standards are widely used and referenced, they are not enforceable and may not be considered “generally accepted industry standards.” As such, the Board opted to include this standard in the Significant Analysis and SBEIS.

Costs: It is likely that many individuals and businesses already apply practices to comply with the standard. For people who currently stockpile livestock waste or plan to do so in the future, probable new costs would take the form of siting stockpiles farther away than planned or desired from surface water bodies. This would involve indeterminate costs on a case-by-case basis. These may be actual, additional costs or opportunity costs associated with not siting a stockpile close to a surface water body. In other words, locating a stockpile next to a surface water body may be the cheapest option and setting it back from the water body may be more costly or less convenient.

Cost factors involved in siting stockpiles include available space and space needs of the waste volume; equipment access to unload/load the waste; proximity to source and use/application

⁶² Virginia Cooperative Extension. 2018. [Manure Management and Environmental Stewardship](#).

⁶³ USDA Natural Resources Conservation Service. 2020. [Code 318, Conservation Practice Standard, Short Term Storage of Animal Waste and By-Products](#).

areas; proximity to dwellings, people, wells, and other exposure risks; and site characteristics such as prevailing wind direction, soil permeability, slope, seasonal water table, and surface drainage. Ideally stockpiles are located on relatively level, well-drained ground that is easily accessed and is buffered from people and water resources to limit risks and impacts.^{8,13,21,64,65,66}

In the cost survey, one respondent indicated the following costs associated with this standard:

- A pig farming/wholesale facility identified a one-time cost of \$210,000 and recurring annual costs of \$50,000 for needs and concerns related to constructing a manure lagoon or selling land to comply with the standard.

While a landowner may choose to comply in this manner, the standard applies to stackable waste (not lagoon storage) and allows reductions to the setback if treatment or control practices are applied. Therefore, the Board anticipates that the cost impacts would likely be lower than estimated.

Benefits: The main benefit is preventing or minimizing runoff, leaching, and impacts to surface water bodies. This reduces risk of human exposure to pathogens via water recreation, drinking water, shellfish harvesting, and other uses of the waters. Setbacks also help protect water bodies that may be vulnerable to nutrient inputs and related problems such as harmful algal blooms. In addition to nutrients, waste from livestock may contain bacteria and parasites harmful to human (and animal) health, including *Campylobacter*, *Cryptosporidium*, *E. coli*, *Giardia*, *Leptospira*, *Salmonella*, and more.^{3,10,21,22,67} Safely stockpiling livestock waste away from surface water bodies helps prevent exposure to pathogens that can cause a variety of illnesses, infections, and symptoms such as diarrhea, abdominal pain, cramping, fever, vomiting, and other flu-like symptoms. Protection against these diseases and infections benefits personal and public health and avoids cost impacts to individuals, neighboring properties, businesses, and activities that depend on clean water and sanitary conditions.

WAC 246-203-130(3)(d)(iii)(D)(II) Site stockpiled livestock waste one hundred feet or more from a surface water body unless the surface water body is protected by one or more control or treatment practices that capture and prevent leachate and runoff.

Description: If waste from livestock is stockpiled for later use or disposal, this exception to WAC 246-203-130(3)(d)(iii)(D) allows people to site stockpiles closer than one hundred feet of a surface water body if practices are applied to mitigate runoff and leachate. This may include practices such as covers and pads or alternate methods of storing stackable waste, such as stacking and composting structures. Since alternate storage methods are an option, they are included in this part of the analysis.

Costs: It is likely that many individuals and businesses already apply practices to comply with the standard. The rule does not prescribe specific practices for this performance standard. The standard allows people to determine the appropriate practices. Functioning controls for existing piles satisfy this standard.

⁶⁴ Michigan State University Extension, [Storing Manure on Small Farms – Deciding on a Storage Option](#).

⁶⁵ Minnesota Pollution Control Agency. 2015. [Manure Stockpiling, Technical Guidelines](#).

⁶⁶ Rutgers University Cooperative Extension, [Storing Manure on Small Horse and Livestock Farms](#).

⁶⁷ University of Minnesota Extension, [BMPs for Pathogen Control in Manure](#).

Common conservation practices for stackable waste include the following, listed by NRCS code. Practices can be applied individually or in combination. Practices may or may not be designed and constructed to NRCS standards but should always be designed to account for anticipated storage needs, surface loads, drainage, and possible seepage.

- **Short-Term Storage of Animal Waste** (Code 318). Temporary, nonstructural measures used to store solid or semisolid organic agricultural waste or manure on a short-term basis between collection and utilization. Common practices include storage pads and watertight covers to prevent runoff and leachate.⁶⁸
- **Waste Storage Facility** (Code 313). An impoundment or containment made by constructing an embankment, excavating a pit or dugout, or fabricating a structure. Lagoons and other impoundments used for liquid/slurry waste are outside the scope of this standard. Storage of stackable waste is an alternative to short-term stockpiling, and fabricated stacking (drystack) facilities are the most common practice.^{8,69}
- **Composting Facility** (Code 317). A structure or device to contain and facilitate decomposition of manure into a final product sufficiently stable for storage or use. While composting is also outside the scope of this standard, a composting facility can serve as a desirable alternative to stockpiling and stacking.⁷⁰
- **Roofs and Covers** (Code 367). Roofs and covers serve to divert clean water from stacked or composted waste to prevent or minimize runoff and leachate. Covers can also help limit odors and pests and provide other benefits.⁷¹
- **Roof Runoff Structure** (Code 558). Like roofs and covers, this practice is used to collect and divert clean water from stacked and composted waste.⁷²
- **Filter Strip** (Code 393). Vegetative filter strips remove sediment, organic material, and other pollutants from runoff. Filter strips serve as a protective buffer between stockpiled, stacked, and composted waste and adjacent surface water bodies.⁷³

Costs of structures and other practices vary significantly and are indeterminate, depending on scale (waste volumes), design, site characteristics, and other factors. Use of multiple practices in combination can increase effectiveness but can also increase costs of control and treatment systems.

If not a roofed structure, cover options include tarp covers in the form of plastic sheeting, polyethylene, or other watertight material that is often weighted or anchored to help fasten the cover. Table 5 shows representative costs of polyethylene tarps, which vary in quality/weight of

⁶⁸ USDA Natural Resources Conservation Service. 2020. [Code 318, Conservation Practice Standard, Short Term Storage of Animal Waste and Byproducts](#).

⁶⁹ USDA Natural Resources Conservation Service. 2016. [Code 313, Conservation Practice Standard, Waste Storage Facility](#).

⁷⁰ USDA Natural Resources Conservation Service. 2020. [Code 317, Conservation Practice Standard, Composting Facility](#).

⁷¹ USDA Natural Resources Conservation Service. 2015. [Code 367, Conservation Practice Standard, Roofs and Covers](#).

⁷² USDA Natural Resources Conservation Service, 2021. [Code 558, Conservation Practice Standard, Roof Runoff Structure](#).

⁷³ USDA Natural Resources Conservation Service. 2016. [Code 393, Conservation Practice Standard, Filter Strip](#).

the material. To incentivize best practices, Whatcom Conservation District offers free tarps to landowners via its small farm program.⁷⁴

Table 5: Representative costs of stockpile covers⁷⁵

Item	Dimension	Cost range
Polyethylene tarp	30 x 50 feet	\$124 - \$182
	50 x 50 feet	\$125 - \$829
	100 x 100 feet	\$580 - \$3,313
	170 x 170 feet	\$7,899 - \$9,577

Other material for stacking and composting structures includes concrete, treated wood (posts, rails, landscaping timbers, etc.), Ecology blocks, bolts, and other hardware for the construction. Structural practices may involve additional costs (e.g., labor, building permits, engineering services). These costs may be offset by technical/financial assistance available from local conservation districts and other agencies.

Designs are available for do-it-yourself construction of simple structures. For example, one design for a three-bay structure calls for 9 cubic yards of concrete for the pad and 28 2 x 2 feet Ecology blocks of different lengths.⁷⁶ Inexact comparables described below using Ecology blocks cost \$2,600 and \$4,000 respectively. More sophisticated structures may require professional design. For example, the structure described in Table 6 as a “12 cubic yard three-bin, forced-air aerator compost structure” cost \$700 to design which is included in the \$5,000 total cost.

Table 6 lists sample structures recently built in the state, mostly small/medium stacking and composting facilities covering a range of costs and designs. As noted previously, larger commercial scale facilities are markedly more costly to design, build, and maintain.

Table 6: Cost of sample stacking and composting structures^{77,78}

Description	Photo (if available)	Cost or Cost Range
600 square foot three-bay compost facility with concrete floor and walls, roof structure, and roof, designed to handle moderate volumes of manure.		\$30,000 - \$40,000






⁷⁴ [Whatcom Conservation District, Financial Assistance for Farms, Tarps to Cover Manure Piles.](#)

⁷⁵ [Lowe's and Canopies and Tarps.](#)

⁷⁶ USDA Natural Resources Conservation Service Lynden Field Office. Undated. [Small Farm Composting Guide: For use in Whatcom, Skagit, Snohomish, San Juan, Island, Clallam, and Jefferson Counties only.](#)

⁷⁷ Andrea Hood, Washington Department of Health. Emails to author, May 19 and June 14, 2021.

⁷⁸ Pauline Chiquet, Whatcom Conservation District via Andrea Hood, Washington Department of Health. Email to author, June 8, 2021.

<p>Compost facility with concrete exterior walls, wood interior walls, roof, and roof structure. Such structures may include a concrete apron, rock, or ramp to control mud, and gutters and downspouts to manage roof runoff.</p>			<p>\$30,000 - \$40,000</p>
<p>3,000 square foot waste storage facility with concrete floor, concrete walls, roof, and roof runoff structure.</p>	<p>photo not available</p>		<p>\$89,000</p>
<p>4 cubic yard single-bay prefab concrete storage bunker and slab with year-round tractor access.</p>			<p>\$3,600</p>
<p>13 cubic yard two-bay storage walled by Ecology blocks with treated wood separator, tarp, and concrete skid for tractor bucket over gravel.</p>			<p>\$2,600</p>
<p>26 cubic yard single-bay storage with Ecology blocks.</p>			<p>\$4,000</p>
<p>6 cubic yard two-bay treated-wood, forced air compost micro-bins.</p>			<p>\$2,800</p>

12 cubic yard three-bin, forced-air aerator compost structure with Ecology block walls, wood panels, and front hinge opening.			\$5,000
24 cubic yard treated-lumber, concrete-footing, gravel-floor storage structure.			\$2,700

These examples illustrate different practices and variability in design, materials, and costs based on many factors, with larger structures and volumes costing more. Grants and cost share funds are available from different government programs, including state cost share administered by the State Conservation Commission on the basis of 75 percent cost share; 25 percent landowner match; \$50,000 cost share cap; and engineered/approved to NRCS standards.⁷⁹ Federal Environmental Quality Incentives Program (EQIP) cost share administered by NRCS has a much larger cap (approximately \$250,000) and practices are all reimbursed at different unit rates (e.g., manure storage per cubic yard, fencing per linear foot). For example, 2021 NRCS reimbursement for a drystack facility with concrete floor and no walls is \$5.74 per square foot and a drystack facility with concrete floor and wood walls is \$2.02 per cubic foot.^{80,81}

In the cost survey, one respondent indicated the following costs associated with this standard:

- A pig farming/wholesale facility identified a one-time cost of \$95,000 and recurring annual costs of \$19,000 for needs and concerns related to engineering services, local permitting, and legal counsel.

Benefits: With proper design and maintenance, conservation practices can effectively protect surface water bodies from stockpiled, stacked, and composted manure.^{8,15,21,64,65,68,69} Practices that capture and prevent leachate and runoff to surface water bodies reduce potential exposure to and impacts of pathogens and nutrients on surface water bodies and associated costs such as closure of swimming beaches and shellfish harvest areas. Landowners and businesses benefit from good, safe practices when livestock waste is recycled and returned to the soil as nutrients and structural amendments. Good practices also help reduce and control pests, animal parasites, and odors. Practices that effectively prevent impacts avoid the need for potentially costly

⁷⁹ Corina Cheever, Whatcom Conservation District via Andrea Hood, Washington Department of Health. Email to author, June 10, 2021.

⁸⁰ Dakota Stranik, Whatcom Conservation District via Andrea Hood, Washington Department of Health. Email to author, June 24, 2021.

⁸¹ USDA Natural Resources Conservation Service. 2021. USDA/NRCS/Washington State EQIP Payment Estimate Worksheet FY21.

cleanup, relocation of stockpiled waste, and difficult and costly enforcement if piles are impacting surface water bodies.

WAC 246-203-130(3)(d)(iii)(E) Site stockpiled livestock waste outside seasonally or frequently flooded areas unless used or disposed of prior to flooding.

Description: If waste from livestock is stockpiled, this standard prohibits siting stockpiles in seasonally or frequently flooded areas unless the stockpile is used or disposed of prior to flooding. Surface runoff, soils, water tables, and other factors determine seasonally and frequently flooded areas. This standard overlaps with WAC 246-203-130(3)(d)(ii) which requires removal of stockpiles at least annually (incorporated from [WAC 173-350-320\(2\)\(2\)](#) and exempt from analysis). The risk of stockpiles being saturated or inundated by water makes such sites ill-suited for stockpiling and may necessitate more frequent removal of piles. The standard also mirrors protection of frequently flooded areas in [WAC 365-190-110](#). The standard involves no provisions for mitigating impacts other than removal of piles prior to flooding.

Costs: Costs associated with this standard can be avoided altogether by not stockpiling in flood-prone areas. If such areas are used for stockpiling, the only cost associated with this provision would be the incremental cost associated with removal more frequently than annually, if needed. However, these costs may be negligible if the volume removed is unaffected.

It is likely that many individuals and businesses already apply practices to comply with the standard. While seasonal/frequent flooding is often recurring and predictable, it can also be sudden and unforeseen. When possible, stockpiles are generally managed and recycled on-site in concert with other practices to reuse the nutrients. Costs to remove/reuse stockpiles on-site are indeterminate and can overlap with other costs discussed previously. Costs for off-site disposal or reuse are also indeterminate and involve different and often higher costs for loading, transport, and disposal.^{5,82,83} Property owners may use some combination of spreaders, dumpsters, containers, or other form of portable or semi-portable holding structure as means for holding and removing stockpiles.^{60,64}

Individuals and businesses can contract with commercial solid waste firms for disposal or with custom manure hauling services for removal of piles or dedicated manure dumpsters for off-site application or disposal.¹³ If waste is landfilled or dropped off at a composting facility, standard tipping fees would apply in addition to transport costs (Table 7).

Table 7: Sample manure disposal costs

Facility	Unit	Cost
King County Cedar Hills Regional Landfill ⁸⁴	per ton	\$168
Pierce County Recycling, Composting, and Disposal (LRI)	per ton	\$38

⁸² King County Department of Natural Resources, Washington State University Cooperative Extension King and Pierce Counties. 2002. [Strategies for Livestock Manure Management](#).

⁸³ Colorado State University Extension. 2018. [Manure Management for Small Acreages](#).

⁸⁴ King County, [Off-site Options for Managing Manure and Bedding](#).

Services), Hidden Valley Compost Factory ⁸⁵		
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People may have access to local no- or low-cost manure exchange programs that help connect property owners seeking manure with those who have excess manure.^{86,87,88} Clark Conservation District offers rental of a manure spreader for \$100/day in spring and fall to help property owners reduce stockpiles and use the waste.⁸⁹ As with other rule standards, scale is a significant factor determining removal costs of waste piles. Including equipment, labor, and disposal, total removal costs can range from hundreds of dollars for modest piles to many thousands of dollars for large piles. One respondent to the cost survey, under a different standard, said removal of a manure stockpile cost \$9,000 but gave no information on scale or volume.

In the cost survey, one respondent indicated the following costs associated with this standard:

- A pig farming/wholesale facility identified a one-time cost of \$17,000 and recurring annual costs of \$10,500 for needs and concerns related to inefficient and unscheduled movement of stockpiles.

Benefits: Stockpiling livestock waste can be an environmentally safe method of manure storage if site selection is carefully considered.⁶⁵ Stockpiling that avoids flood-prone areas and saturated conditions protects water resources and public health. Water that comes in contact with stockpiled manure can pick up particles of manure and manure leachate and transport the waste off-site. The pollutants can be solids, nutrients, pathogens, or other contaminants that flow overland or seep into the ground. Both pathways can have significant negative impacts on water quality and human health.⁶⁵ Like other practices discussed previously, siting stockpiles outside flood-prone areas yields other benefits related to animal health, property values, and valued uses of water resources.

Cost-Benefit Summary

Table 8 summarizes probable new incremental costs and corresponding benefits of the standards for individuals and businesses not already meeting the respective standards. Specific costs and benefits are largely indeterminate—case-by-case based on type/number of animals, waste volumes, site characteristics, and other factors.

Table 8: Cost-benefit summary*

Standard	Costs	Benefits
Overarching		
WAC 246-203-130(3)(a) Collect domestic animal waste at intervals sufficient to maintain sanitary conditions in containment areas.	Costs are equipment, supplies, and labor, and include one-time and recurring/replacement costs. Large cost range depending on situation and waste volumes, ranging from small scale (< \$100) to large scale (>\$100,000) one-	<ul style="list-style-type: none"> • Personal and public health • Environmental health (e.g., runoff, vectors, odor) • Animal health

⁸⁵ LRI Services. Phone inquiry from author, November 16, 2021.

⁸⁶ Whatcom Conservation District, [Manure Link](#).

⁸⁷ Mason Conservation District, [Manure Exchange Program](#).

⁸⁸ Clark Conservation District, [Manure Exchange List](#).

⁸⁹ Clark Conservation District, [Manure Spreader](#).

	time costs for equipment.	
WAC 246-203-130(3)(b)(i),(iii) Handle domestic animal waste to prevent deposition, leaching, and runoff to (i) another person's property, and (iii) surface water bodies used for swimming, shellfish harvesting, or other activity with potential to affect human health.	Costs are indeterminate, case-by-case. Numerous waste handling practices and pollution pathways potentially come into play, including comprehensive waste management on large operations.	<ul style="list-style-type: none"> • Personal and public health • Environmental health • Economic/beneficial uses of water resources • Property values • Community well-being
Disposing Nonlivestock Waste		
WAC 246-203-130(3)(c)(i) Hold nonlivestock waste in a watertight container if stored for more than one day prior to proper disposal.	Costs are equipment, supplies, and labor and include both one-time and recurring costs. Trash bins and bags are generally less than \$100 in one-time costs and require periodic replacement of bins. Total costs depend on waste volumes and holding needs which may be integral to disposal methods/costs.	<ul style="list-style-type: none"> • Personal and public health • Environmental health • Economic/beneficial uses of water resources
WAC 246-203-130(3)(c)(ii) Bag and dispose of nonlivestock waste as solid waste.	Costs are disposal services, equipment, supplies, and labor. Disposal costs may overlap with storage costs. Disposal rates are variable, generally \$20-\$75 per month for residential disposal, more for commercial. Most people and businesses already comply and incremental costs would likely be nominal. Total costs depend on service area, disposal method/rates, and waste volumes.	<ul style="list-style-type: none"> • Personal and public health • Environmental health • Economic/beneficial uses of water resources
Stockpiling Livestock Waste		
WAC 246-203-130(3)(d)(i) Apply control measures as reasonable to minimize and reduce odors and attraction of flies and rodents.	This performance standard encourages use of optional measures to manage and minimize odors and pests associated with livestock waste stockpiles. There are numerous measures and most are passive (e.g., proper siting) and low or nominal in cost. Active practices are more costly and vary with design and scale. Covers in the form of tarps or structures range from \$100s to \$1,000s in one-time cost depending on many factors. Costs of measures that do not include tarps or structures vary in cost on a case-by case basis. Scale and type of operation are significant factors determining potential costs.	<ul style="list-style-type: none"> • Personal and public health. • Environmental health. • Community well-being • Animal health.
WAC 246-203-130(3)(d)(iii)(D) Site stockpiled livestock waste one hundred feet or more from a surface water body.	Costs for this setback are indeterminate, case-by-case, affecting people who currently stockpile livestock waste near surface water bodies or plan to do so in the future. Costs would involve siting stockpiles farther away than planned or desired from surface water bodies.	<ul style="list-style-type: none"> • Personal and public health • Environmental health • Economic/beneficial uses of water resources
WAC 246-203-130(3)(d)(iii)(D)(II)	Costs are equipment, material, and labor to install (one-time costs) and	<ul style="list-style-type: none"> • Personal and public health • Environmental health

<p>Site stockpiled livestock waste one hundred feet or more from a surface water body unless the surface water body is protected by one or more control or treatment practices that capture and prevent leachate and runoff.</p>	<p>maintain (recurring costs) practices to mitigate runoff and leachate from stockpiles. Optional practices range from storage pads and covers to stacking and composting structures. Costs range (\$100s to \$1,000s and up) in one-time costs depending on the practice(s), waste volumes, and other factors.</p>	<ul style="list-style-type: none"> • Economic/beneficial uses of water resources • Potential reuse of livestock waste
<p>WAC 246-203-130(3)(d)(iii)(E) Site stockpiled livestock waste outside seasonally or frequently flooded areas unless used or disposed of prior to flooding.</p>	<p>Costs to remove/reuse stockpiles are indeterminate, case-by-case. Where possible, stockpiles are generally managed/recycled on site. Costs for off-site movement generally involve higher costs for loading, transport, and disposal. Sample disposal costs range between \$38 and \$168 per ton and would be negligible for people already regularly disposing such piles.</p>	<ul style="list-style-type: none"> • Personal and public health • Environmental health • Economic/beneficial uses of water resources

*Summary table based mainly on researched costs and may not reflect responses in the cost survey.

As noted previously, the Board received a total of 41 responses to the business cost survey. Cost survey results included 4 businesses that identified cost information, 24 businesses that indicated no costs, and 13 businesses with unspecified responses. In summary, 37 of 41 respondents across a number of industries identified no cost impact or provided no cost information. This indicates that the adopted rule will likely have little or no cost impact on many businesses.

In instances where additional work is needed to comply with the standards, there may be costs for equipment, supplies, material, and labor to regularly collect and safely store and dispose of animal waste to prevent or abate health hazards and nuisance. The overall incremental cost impact of the adopted rule is indeterminate for properties and operations statewide and will be unique in each situation. The Board concludes that the benefits of actions to comply with the standards, especially the personal and public health benefits, outweigh the potential incremental costs.

SECTION 6: Identify alternative versions of the rule that were considered and explain how the Board determined that the rule being adopted is the least burdensome alternative for those required to comply with it that will achieve the general goals and specific objectives state previously.

Board policy recommendations in the background report¹ established guideposts for the rulemaking, including:

- Develop a practical, purposeful rule;
- Rely on local health authority;
- Focus on the impact of domestic animal waste on health, sanitation, and nuisance;
- Focus on smaller-scale animal waste practices and impacts; and
- Leave regulation of large animal feeding operations to established programs.

The policy recommendations acknowledged that certain issues would be explored during rulemaking. For example, regarding the question of whether to exempt large operations, the report says:

“The rule should not necessarily be limited in scale and could appropriately be applied to larger operations and impacts when needed. The rulemaking process should be used to discuss and determine how best to design and scale the rule’s applicability to address these needs.” (p. 25)

On that specific issue, the adopted rule does not exempt any type, class, or size of operation. The adopted rule does, however, yield to laws with more stringent standards and exclude diffuse practices such as trail riding and open-range grazing where animal waste is unlikely to appreciably accumulate.

In addition to Board policy direction, the rulemaking included objectives to:

- Keep the rule short and simple;
- Better align the rule with Board authority regulating animal waste, not animal keeping;
- Frame the rule around a few control points that people could reasonably meet and are key to health and sanitation; and
- Modernize the rule’s language, standards, and structure.

The rule drafting featured ongoing consideration and analysis of alternate approaches, standards, and rule language. The drafting also involved regular review and input from peers with subject matter expertise at public health and natural resources agencies. In 2019, preliminary drafts were vetted and discussed in two meetings with interested parties. To reach a wider audience, the Board distributed a formal draft for public review in early 2020 and ultimately extended the comment deadline to encourage more comment.

At every turn, rule language evolved in response to feedback. For example, edits to the public review draft prior to consideration by the Board in November 2020, included the following changes:

- Removed three draft subsections that aimed to add context, but proved extraneous;
- Revised draft language to align more narrowly with Board and local health officer authority;
- Revamped draft enforcement language to employ conventional enforcement authority of local health officers in Board rules;
- Removed the following draft standards:
 - pick up after pets that defecate on other people’s property;
 - set back livestock waste stockpiles from property lines and public rights-of-way; and
 - control and cover livestock waste stockpiles.
- Edited draft livestock waste stockpiling standards to better align with established standards in other rules and codes;
- Clarified that collection of waste applies to containment areas and does not apply to open-range grazing, trail riding, and other diffuse sources; and
- Deleted, edited, and added numerous terms and definitions to support the simpler rule.

While drafting the Significant Analysis, the Board deleted a draft standard prohibiting use of composted nonlivestock waste on edible plants, reinforcing the rule’s focus on waste (not compost) and avoiding any unintended regulatory conflict with commercial composting facilities. When the Board adopted the rule on June 8, 2022, it included several clarifying amendments to further facilitate compliance and avoid unintended regulatory conflict. These included the following:

- Added examples of laws with more stringent standards that supersede the rule, including the Dairy Nutrient Management Act, Right to Farm law, and concentrated animal feeding operation (CAFO) permits;
- Added language clarifying that nonlivestock waste disposal does not apply to composting facilities regulated under state solid waste rules; and
- Amended the requirement for odor/pest control of livestock waste stockpiles as a performance standard encouraging use of measures to control odors and pests.

The adopted rule sets basic standards that are essential to health and sanitation and are the least burdensome to achieving the objective of safe waste handling and disposal. Stated differently, the adopted rule establishes expectations and standards that are intended to be meaningful, reasonable, and least burdensome.

SECTION 7: Determine that the rule does not require those to whom it applies to take an action that violates requirements of another federal or state law.

The adopted rule does not require actions that violate requirements of another federal or state law. The background report¹ evaluated the regulatory structure in Washington for livestock manure and other domestic animal waste. The purpose of the evaluation was to inform the rulemaking—to avoid standards that might conflict with requirements in other laws and rules and to identify an appropriate niche for the Board’s revised rule.

The rule is designed and written to focus on animal excreta, and to reference and reinforce standards of other rules and codes to help ensure regulatory consistency. Where there may be an overlap in requirements, the adopted rule defers to more stringent standards in federal, state, or municipal law.

SECTION 8: Determine that the rule does not impose more stringent performance requirements on private entities than on public entities unless required to do so by federal or state law.

The adopted rule does not impose more stringent performance requirements on private entities than on public entities. The rule regulates all persons defined as “any individual, corporation,

company, association, society, firm, partnership, joint stock company, or any governmental agency, or the authorized agents of these entities.” The rule applies equally to all persons regardless of public or private ownership or affiliation.

SECTION 9: Determine if the rule differs from any federal regulation or statute applicable to the same activity or subject matter and, if so, determine that the difference is justified by an explicit state statute or by substantial evidence that the difference is necessary.

The Board has unique responsibility and authority regulating animal waste to prevent, control, and abate health hazards and nuisance detrimental to human health. As described in the background report¹, the rule addresses issues associated with several other laws and programs. However, the authority, purpose, and applicability of those laws and programs differ significantly from the Board’s domestic animal waste rule.

By their nature, public health is integral to other state laws and rules dealing with animal waste, manure management, nonpoint pollution, and solid waste. However, none have authority specific to sanitation, health hazards, and nuisance directly comparable to Board authority for animal waste. The adopted rule is designed and written to complement other laws; to emphasize initial waste deposition, collection, stockpiling, and disposal; and to equip local health officers in situations where animal waste creates a health hazard or nuisance. The adopted rule creates no new authority.

SECTION 10: Demonstrate that the rule has been coordinated, to the maximum extent practicable, with other federal, state, and local laws applicable to the same activity or subject matter.

As noted previously, the background report provides a comprehensive evaluation and description of the state regulatory structure for livestock manure and other domestic animal waste.¹ The rulemaking has taken this into account to help avoid conflicting requirements. Where feasible, the adopted rule incorporates standards in other established rules and codes. The rule yields to any overlapping standard in federal, state, or municipal law that is more stringent.

The rulemaking involved significant outreach to and coordination with local, state, and federal agencies on the issues. At the state level, this included coordination with the Washington State Department of Agriculture, Washington State Department of Ecology, Washington State Department of Health, State Conservation Commission, Washington State Department of Natural Resources, and Washington State Parks. At the local level, the rulemaking involved communication with and input from conservation districts, local health jurisdictions, and counties, coupled with outreach to state associations for cities, counties, conservation districts, and local health jurisdictions. This feedback significantly shaped the design and content of the adopted rule.