

# **Wastewater and Drinking Water Systems in Idaho: Infrastructure Needs, Growth and Workforce**

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**University of Idaho**

McClure Center for  
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# Executive Summary

This report describes the current landscape of wastewater and drinking water systems in Idaho, including infrastructure needs, growth and the workforce. This report focuses on systems that treat wastewater from and provide drinking water for domestic uses and excludes industrial systems, except where specified.

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## Wastewater and Drinking Water Systems

Wastewater systems collect and treat water that flows from indoor uses, such as homes and businesses.<sup>1</sup> Drinking water systems supply safe, reliable drinking water to homes, businesses and other structures requiring water service.<sup>2</sup> In many cases, drinking water systems also provide water for fire suppression.<sup>3</sup>

- There were an estimated 450 wastewater systems and 2,016 drinking water systems in Idaho in 2024.<sup>4</sup>
- Many wastewater systems in Idaho are small.<sup>5</sup> The vast majority (97%) of drinking water systems in Idaho are small.<sup>6</sup> Small systems are those that serve 3,300 people or fewer.<sup>7</sup>
- Wastewater and drinking water systems in Idaho are regulated by the Idaho Department of Environmental Quality.

Wastewater and drinking water systems in Idaho, like elsewhere, require periodic capital investments in infrastructure improvements, in addition to ongoing operational costs.<sup>8</sup>

- The extent and timing of capital investments are most often driven by aging infrastructure, changes in environmental and public health regulations and the need to expand capacity.<sup>9</sup>
- Wastewater and drinking water systems charge fees to their users for the services they provide. Fees often cover operational costs, but may not be sufficient to finance infrastructure investments.<sup>10</sup>
- To finance infrastructure investments, system managers in Idaho combine revenues from fees with financing opportunities offered by federal, state, local, non-profit and private sector entities.

## Infrastructure Needs

This report estimates Idaho's wastewater and drinking water infrastructure needs based on administrative data from the primary federal, state and non-profit entities that provide financing for wastewater and drinking water infrastructure in Idaho.<sup>11</sup>

- Idaho’s wastewater infrastructure needs are estimated to be \$617 million in state FY2025 and, provisionally, at least \$730 million in state FY2026.<sup>12</sup>
- Idaho’s drinking water infrastructure needs are estimated to be \$369 million in state FY2025 and, provisionally, at least \$335 million in state FY2026.<sup>13</sup>
- The portion of wastewater and drinking water infrastructure needs that are funded in a given fiscal year depends on the number and size of the financing requests and the funds available from federal, state, local, non-profit and private sector entities.
- Drinking water infrastructure needs are expected to increase due to regulations related to contaminants, such as per- and poly-fluoroalkyl substances (PFAS) and lead.<sup>14</sup>

## Growth and Infrastructure

Population and housing growth put pressure on existing wastewater and drinking water systems. Additional people require additional wastewater and drinking water services and infrastructure.

- Wastewater and drinking water system managers report growth as a top driver of infrastructure needs in Idaho.<sup>15</sup>
- Idaho’s population has more than doubled since 1980 and reached just over 2 million people in 2024.<sup>16</sup>
- Idaho’s population is projected to increase to 2.2 million people by 2032.<sup>17</sup>
- The number of housing units in Idaho has more than doubled since 1981, reaching an estimated 832,000 in 2024.<sup>18</sup>
- To finance growth-related infrastructure needs, systems may charge connection fees and/or development impact fees and/or use property tax revenue from local taxing districts.<sup>19</sup>

## The Wastewater and Drinking Water Workforce

The wastewater and drinking water workforce encompasses those working directly with physical infrastructure, including operators and technicians, and associated jobs, such as office clerks, bookkeepers, managers, engineers and tradespeople.<sup>20</sup>

- Wastewater and drinking water system operators, managers, maintenance workers, electricians and plumbers are considered “in-demand careers” in Idaho.<sup>21</sup>
- An estimated 28% of wastewater and drinking water system operators are nearing retirement in Idaho, which is similar to operators in the U.S. as a whole.<sup>22</sup>
- In 2024, the median wage for wastewater and drinking water operators in Idaho was \$53,250/year,<sup>23</sup> higher than the median wage across all occupations in Idaho (\$46,470/year).<sup>24</sup>
- Wastewater and drinking water systems offer jobs with opportunities related to wages, geography and career mobility.<sup>25</sup>
- Opportunities for workers may create recruitment and retention challenges for wastewater and drinking water employers, particularly for small systems and those located in places with a high cost of living.<sup>26</sup>

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- <sup>1</sup> "About Small Wastewater Systems," April 10, 2024, <https://www.epa.gov/small-and-rural-wastewater-systems/about-small-wastewater-systems>; Idaho Department of Environmental Quality, "Wastewater," accessed February 7, 2025, <https://www.deq.idaho.gov/water-quality/wastewater/>.
- <sup>2</sup> Idaho Department of Environmental Quality, "General Information on Drinking Water," n.d., <https://www.deq.idaho.gov/water-quality/drinking-water/general-information-on-drinking-water/>.
- <sup>3</sup> "How Water Works: Fire Flow Requirements Protect Service Areas" (American Water Works Association, July 2008), <https://www.awwa.org/wp-content/uploads/How-Water-Works-Fire-Flow-Requirements.pdf>; Brian O'Connor, "Types of Water Supply for Fire Protection Systems," June 2021, <https://www.nfpa.org/news-blogs-and-articles/blogs/2021/06/07/types-of-water-supplies>.
- <sup>4</sup> Idaho Department of Environmental Quality, "IPDES Permit List 2024" (Idaho Department of Environmental Quality, December 2024); Idaho Department of Environmental Quality, "Public Wastewater Systems Classification List," October 2022; "Active Public Water Systems" (Idaho Department of Environmental Quality, December 2024).
- <sup>5</sup> Idaho Department of Environmental Quality, "IPDES Permit List 2024."
- <sup>6</sup> "Active Public Water Systems."
- <sup>7</sup> "Safe Drinking Water Act," 42 U.S.C. Sec. 300f et seq § (1974), <https://www.govinfo.gov/content/pkg/USCODE-2018-title33/pdf/USCODE-2018-title33-chap26.pdf>.
- <sup>8</sup> Claudia Copeland and Mary Tiemann, "Water Infrastructure Needs and Investment: Review and Analysis of Key Issues" (Congressional Research Service, 2010).
- <sup>9</sup> Copeland and Tiemann, "Water Infrastructure Needs and Investment: Review and Analysis of Key Issues"; Matthew May and Gabe Osterhout, "Wastewater and Drinking Water Infrastructure Needs Survey" (Idaho Policy Institute, 2022), Obtained on request.
- <sup>10</sup> "Pricing and Affordability of Water Services" (U.S. Environmental Protection Agency, January 19, 2025), [https://19january2021snapshot.epa.gov/sustainable-water-infrastructure/pricing-and-affordability-water-services\\_.html](https://19january2021snapshot.epa.gov/sustainable-water-infrastructure/pricing-and-affordability-water-services_.html); "State of the Water Industry" (American Water Works Association, 2024).
- <sup>11</sup> Author's calculations. See full report for methodology.
- <sup>12</sup> Author's calculations.
- <sup>13</sup> Author's calculations.
- <sup>14</sup> "Lead and Copper Rule Improvements," 40 CFR, Part 141, Subpart 1 § (2024), <https://www.epa.gov/ground-water-and-drinking-water/lead-and-copper-rule-improvements>; "PFAS National Primary Drinking Water Regulation" (The Federal Register, n.d.), <https://www.federalregister.gov/documents/2024/04/26/2024-07773/pfas-national-primary-drinking-water-regulation>.
- <sup>15</sup> May and Osterhout, "Wastewater and Drinking Water Infrastructure Needs Survey."
- <sup>16</sup> "Population and Housing Unit Estimates" (U.S. Census Bureau, 2024), <https://www.census.gov/data/tables/time-series/demo/popest/2020s-national-total.html>.
- <sup>17</sup> "Population Projections 2022-2032" (Idaho Department of Labor, 2022), Obtained on request.
- <sup>18</sup> "Population and Housing Unit Estimates."
- <sup>19</sup> North Idaho Building Contractors Association v. City of Hayden, No. 45181 (Idaho Supreme Court December 28, 2018); Loomis v. City of Hailey, No. 18321 (Idaho Supreme Court March 21, 1991); "Development Impact Fees: Title 67, Chapter 82" (State of Idaho, n.d.), <https://legislature.idaho.gov/wp-content/uploads/statutesrules/idstat/Title67/T67CH82.pdf>; "Community Infrastructure District Act: Title 50, Chapter 31" (State of Idaho, n.d.), <https://legislature.idaho.gov/wp-content/uploads/statutesrules/idstat/Title50/T50CH31.pdf>; "Local Improvement District Code: Title 50, Chapter 17." (State of Idaho, n.d.), <https://legislature.idaho.gov/statutesrules/idstat/title50/t50ch17/>; "Urban Renewal Law: Title 50, Chapter 20" (State of Idaho, n.d.), <https://legislature.idaho.gov/statutesrules/idstat/title50/t50ch20/>.
- <sup>20</sup> Joseph Kane and Adie Tomer, "Renewing the Water Workforce," Metropolitan Policy Program (Brookings Institution, June 2018).
- <sup>21</sup> "Idaho LAUNCH In-Demand Careers: Class of 2024" (Idaho Workforce Development Council, September 13, 2023), <https://nextsteps.idaho.gov/assets/uploads/2023/09/In-Demand-Career-List-Approved-9-13-2329.pdf>; "Idaho LAUNCH In-Demand Careers: Class of 2025" (Idaho Workforce Development Council, December 2024), [https://nextsteps.idaho.gov/assets/uploads/2025/01/In-Demand-Career-List\\_Dec-30\\_by-SOC-Title\\_by-score-1.pdf](https://nextsteps.idaho.gov/assets/uploads/2025/01/In-Demand-Career-List_Dec-30_by-SOC-Title_by-score-1.pdf).
- <sup>22</sup> Lightcast and Idaho Department of Labor, "Water and Wastewater Treatment Plant and System Operators in Idaho," Occupational Snapshot Report, 2025.
- <sup>23</sup> "Occupational Employment and Wage Statistics (OEWS)" (U.S. Bureau of Labor Statistics, May 2023), <https://www.bls.gov/oes/tables.htm>.
- <sup>24</sup> "Occupational Employment and Wage Statistics (OEWS)," May 2023.
- <sup>25</sup> Kane and Tomer, "Renewing the Water Workforce"; Lightcast and Idaho Department of Labor, "Water and Wastewater Treatment Plant and System Operators in Idaho."
- <sup>26</sup> "State of the Water Industry"; Kane and Tomer, "Renewing the Water Workforce."

# Overview of Water Systems

Centralized wastewater and drinking water systems have existed in the United States since the 1800s.<sup>1</sup> Many wastewater and drinking water systems in the U.S. were built during periods of economic growth and population increase, such as in the 1890s, 1920s and 1950s.<sup>2</sup> These systems consist of physical infrastructure and the people and governing bodies that run them.

**Wastewater systems** collect and treat water that flows from indoor uses, such as homes and businesses.<sup>3</sup> This report focuses on systems that collect and treat wastewater from domestic uses and excludes industrial wastewater systems.<sup>a</sup>

Wastewater systems consist of collection systems and treatment systems. Collection systems, such as pipes and pumps, move wastewater to treatment systems, where contaminants are removed so that the water can be discharged into the environment without negatively affecting water quality.<sup>4</sup> Wastewater systems are regulated under the federal Clean Water Act (CWA) of 1972.<sup>5</sup>

The Federal Water Pollution Control Act of 1972, commonly known as the **Clean Water Act** (CWA), is the primary federal law governing water pollution, including setting standards for discharge of wastewater.<sup>6</sup> The CWA regulates the discharge of pollutants from point sources, such as wastewater treatment systems, into waters of the United States.<sup>7,b</sup> In Idaho, the Department of Environmental Quality (IDEQ) is responsible for implementing CWA standards.<sup>8</sup> IDEQ regulates the planning, design and operation of wastewater facilities and the discharge of wastewater, “which may adversely affect public health and water quality in the waters of the state.”<sup>9</sup>

In Idaho, any structure or facility that generates, collects, treats or disposes of 2,500 gallons or more of wastewater per day must follow the procedures and requirements set forth by the Idaho Department of Environmental Quality (IDEQ).<sup>10</sup>

**Drinking water systems** supply safe, reliable drinking water to homes, businesses and other structures requiring water service.<sup>11</sup> In many cases, drinking water systems also provide water for fire suppression.<sup>12</sup> This report focuses on drinking water systems that provide water for domestic uses and excludes industrial drinking water systems, except where specified.

Drinking water systems consist of infrastructure, such as treatment facilities, tanks, pumps, water mains and service lines (pipes).<sup>13</sup> Drinking water systems draw water from sources,

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<sup>a</sup> Municipal and other wastewater treatment systems may opt to accept industrial wastewater under certain conditions, including necessary permitting and pre-treatment by the industrial entity. (Source: <https://www.epa.gov/npdes/industrial-wastewater>)

<sup>b</sup> Waters of the United States refers to certain rivers, lakes, streams, wetlands and, in some cases, ditches that are protected under the CWA. The exact definition is subject to change and ongoing legal interpretation. (Source: <https://www.epa.gov/wotus/about-waters-united-states>)

such as rivers, lakes, reservoirs and aquifers.<sup>c</sup> Public drinking water systems are subject to regulation under the federal Safe Drinking Water Act (SDWA) of 1974 and, in Idaho, are regulated by IDEQ.<sup>14</sup>

The **Safe Drinking Water Act** (SDWA) of 1974 is the primary federal law to ensure safe drinking water for the public.<sup>15</sup> Under the SDWA, the U.S. Environmental Protection Agency (EPA) sets standards for drinking water quality and works with states, localities and water suppliers in implementing these standards.<sup>16</sup> These include standards for naturally occurring and man-made contaminants and the protection of drinking water sources.<sup>17</sup> SDWA standards apply to all public drinking water systems in the U.S. and do not apply to private wells serving fewer than 25 people.<sup>18</sup> In Idaho, the Department of Environmental Quality (IDEQ) is responsible for implementing SDWA standards.<sup>19</sup>

“Public drinking water systems” refers to drinking water systems that have at least 15 service connections or regularly serve an average of 25 or more people for at least 60 days out of the year.<sup>20</sup> A **service connection** could be a home, business or other structure. Public drinking water systems can include systems in cities, apartment complexes, mobile home parks, schools, churches, campgrounds, rest stops and gas stations. Not all public drinking water systems are owned, operated or governed by public entities. Throughout this report, public drinking water systems, as defined above, are referred to as drinking water systems.

Wastewater and drinking water systems are physically distinct, but they can share an owner, operator and/or governing body. Wastewater and drinking water systems in Idaho may be owned, operated or governed by public or private entities, such as cities, water districts, sewer districts, homeowners’ associations and counties.

Wastewater and drinking water systems charge their users for the services they provide. **Service fees** are charges to users on an ongoing basis as flat and/or usage-based rates.<sup>21</sup> Governing bodies of wastewater and drinking water systems, such as city councils and water and/or sewer district boards, are responsible for determining appropriate fee structures for their users, with approval required by Idaho’s Public Utility Commission in some cases.<sup>22</sup>

In addition to service fees, development impact fees and connection fees can be charged to cover the costs of adding new users to wastewater and drinking water systems.<sup>23</sup>

**Development impact fees** are designed to pay for a “proportionate share of the cost of any system improvements needed” to serve a new housing development.<sup>24</sup> **Connection fees** are proportional fees based on the value of existing infrastructure at the time of a new connection, whether it is a multi-home development or an individual residence.<sup>25</sup> Costs of future infrastructure upgrades cannot be included in connection fees.<sup>26</sup>

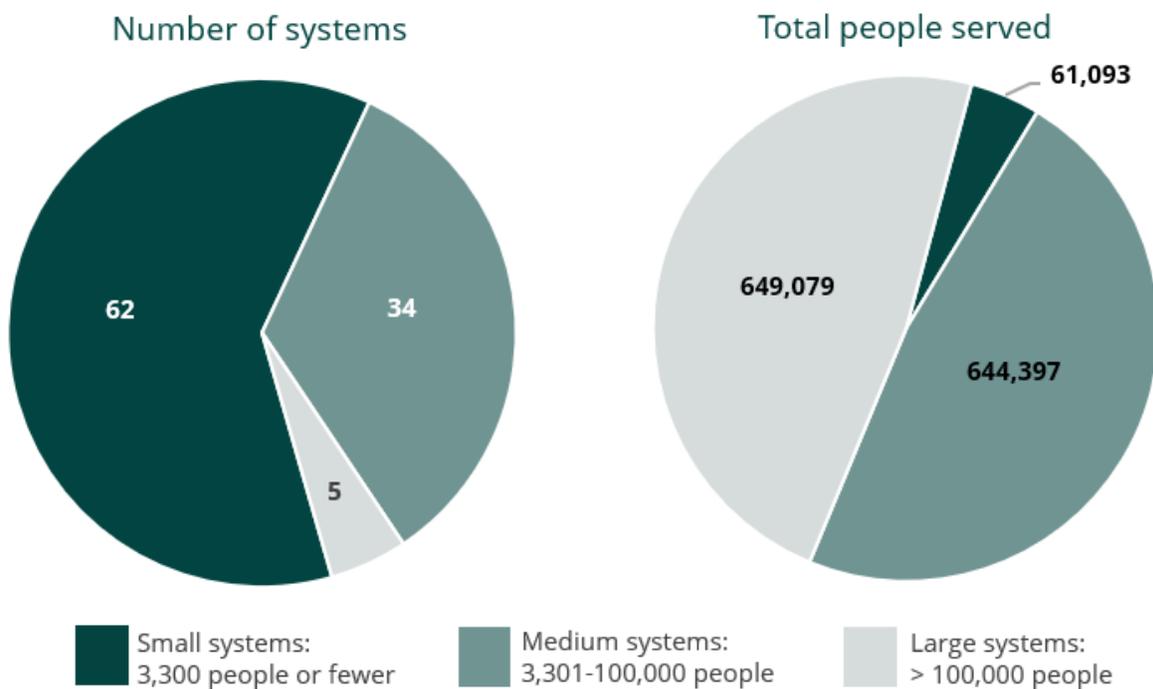
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<sup>c</sup> An aquifer is a natural underground geological formation where large quantities of groundwater fill spaces between rocks and sediment. To be considered an aquifer in Idaho, the geological formation must produce economically significant quantities of water to wells and springs. (Source: <https://www.deq.idaho.gov/water-quality/groundwater/aquifers/>)

## Wastewater Systems in Idaho

In 2024, there were an estimated 450 wastewater systems in Idaho.<sup>27</sup> Wastewater systems in Idaho that discharge treated wastewater into waters of the U.S. in Idaho are required to have a permit from IDEQ<sup>d</sup> and report the number of users. In 2024, the 101 systems that reported the number of users served a total of 1.35 million Idahoans.<sup>28</sup> More than half of these were small, each serving 3,300 Idahoans or fewer, with medium and large systems serving more total people overall (Figure 1).

**Figure 1: Wastewater Systems with Discharge Permits in Idaho, by Size, 2024**



Source: Idaho Department of Environmental Quality, "IPDES Permit List," 2024.

An estimated 350 non-industrial wastewater systems, as well as private septic systems, serve the remainder of Idaho's population.<sup>29</sup> Data on the total number of septic systems in the state are not available.

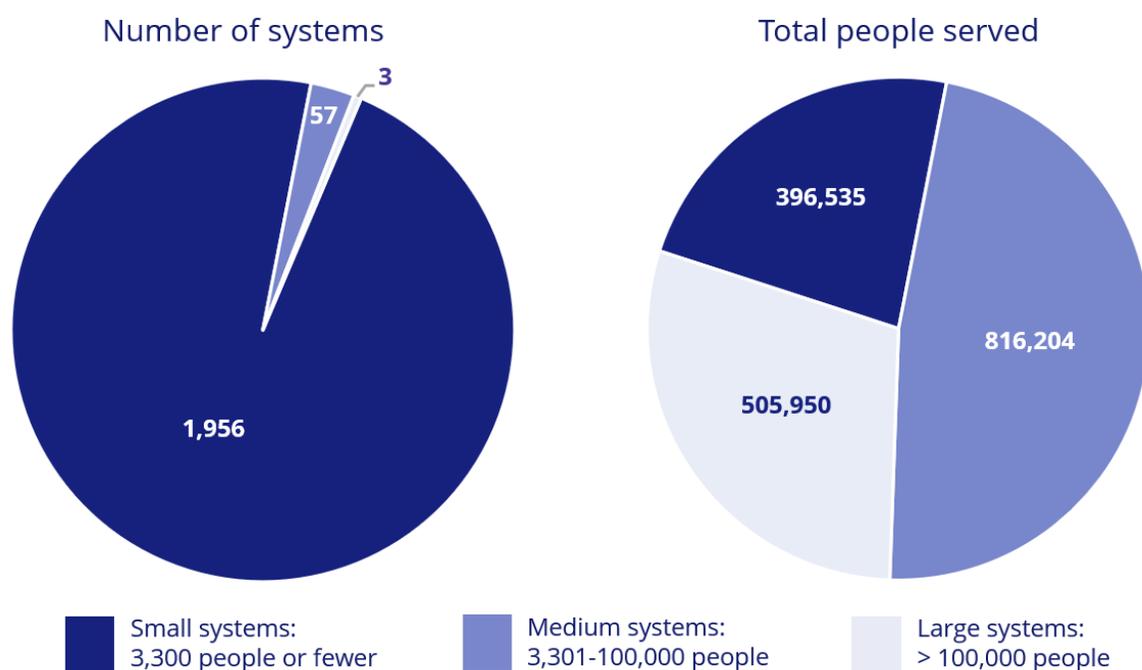
<sup>d</sup> The Idaho Pollutant Discharge Elimination System (IPDES) Bureau at IDEQ oversees the discharge of pollutants, including those contained in treated wastewater, into waters of the U.S. in Idaho. The IPDES permit process requires reporting of the population served by each system. Approximately one-quarter of the wastewater treatment systems in Idaho are subject to IPDES permits. Systems that dispose of treated effluent through land application or recycled water must have a reuse permit, which is distinct from the IPDES permit. (Source: <https://www.deq.idaho.gov/water-quality/wastewater/>)

## Drinking Water Systems in Idaho

There are 2,016 drinking water systems in Idaho as of February 2025.<sup>30,e</sup> Drinking water systems serve an estimated 1.7 million people in Idaho.<sup>31</sup> This includes systems used by people periodically (e.g., a church, a school), as well as those used on a continual basis, such as people's homes. In addition to drinking water systems, some of Idaho's homes and businesses are served by private wells. There are approximately 200,000 documented wells in Idaho that are utilized for a variety of purposes, including domestic use by Idaho's residents.<sup>32,f</sup>

Most drinking water systems in Idaho are small, as defined by the number of people served. The vast majority (97%) serve 3,300 or fewer Idahoans each (Figure 2).<sup>33</sup> Medium and large systems served the most total people overall.<sup>34</sup> Three systems each serve more than 100,000 Idahoans: Veolia North America (Boise), City of Meridian and City of Nampa.<sup>35</sup>

**Figure 2: Drinking Water Systems in Idaho, by Size, 2025**



Source: Idaho Department of Environmental Quality, "Active Public Water Systems," 2025.

<sup>e</sup> The total count of drinking water systems and system size in Idaho includes industrial systems. The majority of drinking water systems are domestic.

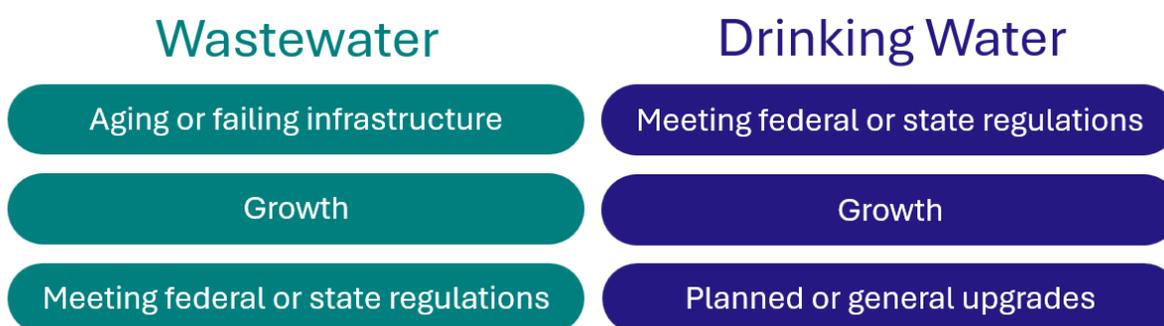
<sup>f</sup> The Idaho Department of Water Resources (IDWR) has authority for rules governing well construction, modification and decommissioning; licensing of well drillers and drilling permits in Idaho. Wells in IDWR's database may or may not be in active use. (Sources: <https://idwr.idaho.gov/wells/>, <https://idwr.idaho.gov/wp-content/uploads/sites/2/water-data/Groundwater-FAQs.pdf>, <https://adminrules.idaho.gov/rules/current/37/370309.pdf>)

## Financing for Wastewater and Drinking Water Systems

Wastewater and drinking water systems incur ongoing operational costs, as well as large periodic expenditures associated with infrastructure improvements.<sup>36</sup> These periodic expenditures, or **capital investments**, are distinct from operations expenditures. In Idaho and nationally, several factors drive the extent and timing of capital investments (Figure 3).

- **Lifespan.** All physical infrastructure has a finite lifespan. Infrastructure deteriorates or fails as it reaches the end of its lifespan and capital investments are required for rehabilitation or replacement. The lifespan of wastewater and drinking water infrastructure depends on many factors, including maintenance, design, construction materials, construction quality, soil type and characteristics of the water flowing through the system.<sup>37</sup> Drinking water infrastructure tends to have a longer lifespan than wastewater infrastructure.<sup>38</sup>
- **Regulation.** As environmental and public health regulations change, upgrades to wastewater and drinking water infrastructure are often required.<sup>39</sup> Wastewater regulations focus on managing discharges that may be harmful to the environment (see Box 2). Drinking water regulations focus on contaminants that may be harmful to human health (see Box 3). Requirements in the CWA and SDWA, beginning in the 1970s, resulted in capital investment needs in a large number of systems across the U.S.<sup>40</sup> Updates to environmental and public health regulations under the CWA and SDWA continue to contribute to infrastructure needs.<sup>41</sup>
- **Growth.** Wastewater and drinking water systems may expand their capacity in response to population growth. More people, homes and businesses lead to increased need for wastewater and drinking water services.

**Figure 3: Top Reasons for Infrastructure Improvements in Idaho, 2021**



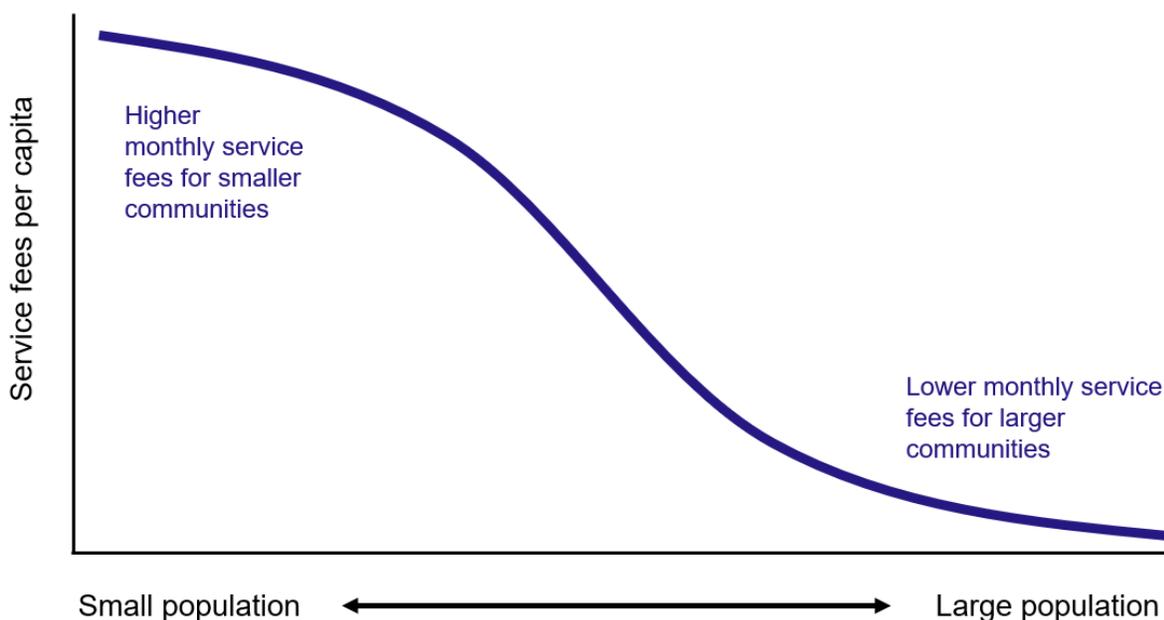
Source: May and Osterhout, "Wastewater and Drinking Water Infrastructure Needs Survey," 2022. Note: Based on a non-representative survey of 291 wastewater and drinking water system operators, board members, engineers and other managers in Idaho in 2021.

In the wastewater and drinking water sector, financing past, present and future infrastructure improvements, as well as ongoing operations, using revenue from fees is considered a best practice.<sup>42</sup> This is also known as **full cost pricing**.<sup>43</sup>

Nationally, in 2024, 20% of system executives surveyed reported being able to implement full cost pricing and 73% reported the intention to raise rates.<sup>44</sup> In the same survey, increasing revenue generation was a top concern for small system managers across the U.S.<sup>45</sup>

Full cost pricing can be challenging for smaller systems due to their small user base and relatively high per-capita costs.<sup>46</sup> For example, a smaller system would have to charge higher service fees than a larger system to pay for infrastructure improvements with the same total cost (Figure 4). Full cost pricing can also be challenging for systems that have a backlog of infrastructure needs.<sup>47</sup> In both cases, full cost pricing may require prohibitively high service fees.<sup>48</sup>

**Figure 4: Illustration of System Size and Service Fees per Capita\***



\*Based on a comparison between systems of different sizes with infrastructure improvements of the same total cost.

To finance ongoing operations and periodic capital investments, system managers in Idaho use revenues from service fees, development impact fees and connection fees in combination with financing opportunities offered by federal, state, local, non-profit and private sector entities. Such opportunities include State Revolving Funds, federal grants and loans, municipal bonds and other financing approaches. System managers may also explore regionalization (Box 1), a strategy that can complement the financing opportunities described in this report.

## Box 1: Regionalization

Regionalization, or the consolidation of adjacent wastewater or drinking water systems, offers opportunities to increase a system's user base and create efficiencies.<sup>49</sup> Regionalization may improve service delivery, regulatory compliance and/or affordability through increased technical, financial and managerial capacity.<sup>50</sup> Benefits from regionalization can be particularly significant for small systems.<sup>51</sup> Feasibility and success of regionalization depend on local circumstances, such as geography, finances, human resources and governance, as well as federal, state and local policies.<sup>52</sup>

## State Revolving Funds

To finance wastewater and drinking water infrastructure improvements, Congress established the Clean Water State Revolving Fund (CWSRF) in 1987 and the Drinking Water State Revolving Fund (DWSRF) in 1996.<sup>53</sup> The CWSRF is designed to fund water quality protection efforts and is used for wastewater systems. The DWSRF is designed to serve public health needs and is used for drinking water systems. The DWSRF is required to serve the needs of the existing population, not needs related to population growth.<sup>54,g</sup> The CWSRF does not have the same limitation.<sup>55</sup>

The **State Revolving Funds** (SRFs) use dollars appropriated by Congress and allocated by the U.S. EPA to individual states via a formula to “capitalize” SRF programs.<sup>56</sup> SRF programs provide low-cost loans, loan forgiveness and grants to support planning for and implementation of wastewater and drinking water infrastructure improvements.<sup>57</sup> The SRFs are a central financing mechanism for wastewater and drinking water system infrastructure throughout the U.S. and in Idaho.<sup>58</sup> Idaho's SRFs are administered by IDEQ.<sup>59</sup>

Federal allocations for Idaho's CWSRF and DWSRF are shown in Figure 5, using inflation-adjusted, 2023 dollars.

Initial federal allocations to Idaho's CWSRF were \$11 million in 1989.<sup>60</sup> Idaho's CWSRF funding levels fluctuated between \$5 and \$23 million until 2009 when funds from the federal American Recovery and Reinvestment Act (ARRA) were allocated to state SRFs. In 2009, the U.S. EPA allocated \$32 million to Idaho's CWSRF.<sup>61</sup> Funding levels increased again in 2022 and 2023 when the federal Infrastructure Investment and Jobs Act (IIJA) provided additional funding, with Idaho receiving \$14 million in 2023.<sup>62</sup>

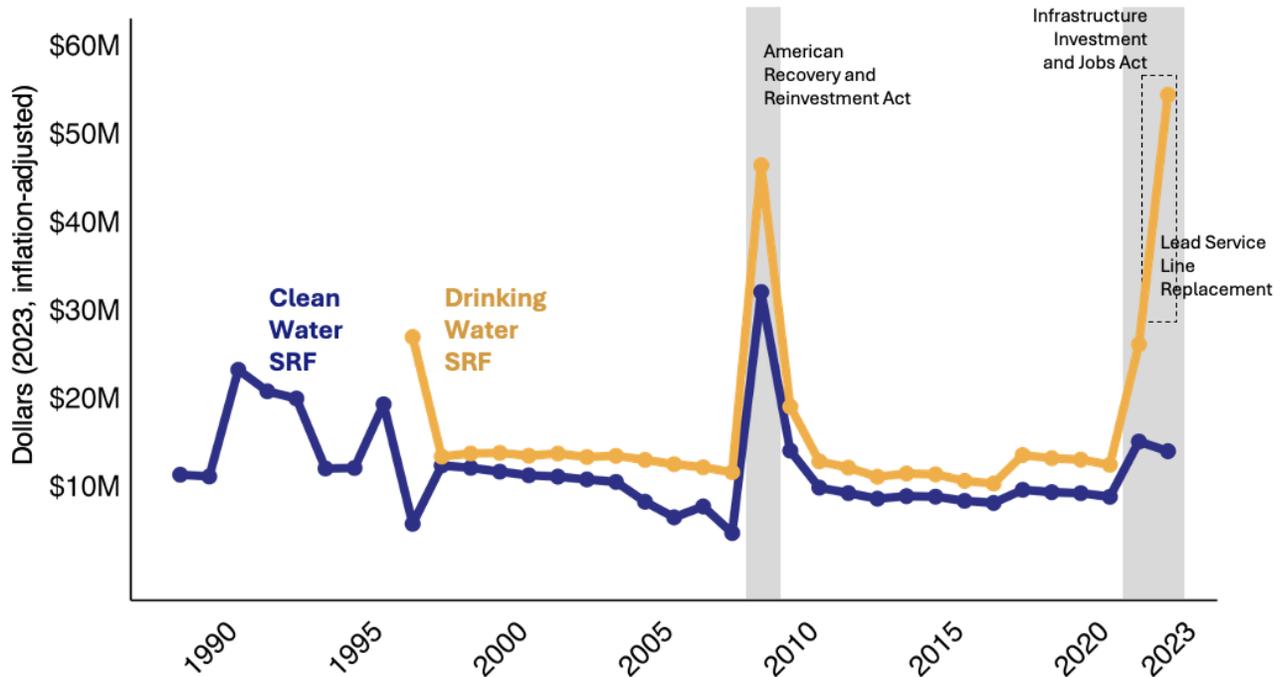
Initial federal allocations to Idaho's DWSRF were \$27 million in 1997.<sup>63</sup> Since 1998, Idaho's DWSRF funding levels have remained stable at approximately \$13 million in most years except for 2009 infusions of ARRA funds (\$46 million) and 2022-2023 infusions of IIJA funds

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<sup>g</sup> The DWSRF is required to “avoid the use of funds to finance the expansion of any public water system in anticipation of future population growth.” (Source: U.S. Environmental Protection Agency. “Drinking Water State Revolving Fund Eligibility Handbook,” 2017.)

(\$26 million and \$54 million, respectively).<sup>64</sup> IJA allocations for 2023 included funding specifically for lead service line replacement.<sup>65</sup>

**Figure 5. Idaho State Revolving Funds (SRFs) Federal Allocations, 1989-2023**



Source: Idaho Department of Environmental Quality. “Clean Water and Drinking Water State Revolving Fund Capitalization Grants to Idaho,” 2024.

In addition to federal allocations, the SRFs received funding allocations from the Idaho State Legislature in some years. In state FY2022-FY2024, \$325 million in federal American Rescue Plan Act (ARPA) funding was appropriated to IDEQ along with \$92 million in general funds, also known as Leading Idaho Funding (LIF).<sup>66</sup>

### Federal Grants and Loans

Other financing mechanisms for wastewater and drinking water infrastructure include grants and loans from federal agencies, such as the U.S. Army Corps of Engineers (USACE), U.S. Bureau of Reclamation, U.S. Department of Agriculture (USDA), U.S. Department of Commerce Economic Development Administration, U.S. Department of Housing and Urban Development (HUD), U.S. EPA and direct federal appropriations for specific projects.<sup>67</sup>

### Municipal Bonds

Municipal bonds are another financing mechanism for wastewater and drinking water infrastructure. **Municipal bonds** are loans to municipalities that are secured against their

revenue streams.<sup>68,h</sup> Bonds that are secured against service fees are a common financing mechanism for wastewater and drinking water infrastructure and the cost of the debt is reflected in the fees that users pay for the service provided.

Any type of loan financing, including bonds, that spreads the cost of an infrastructure project across users in the system can result in high service fees for small and medium-size systems, even if payments are spread over many years (Figure 4).<sup>69</sup> Financing with municipal bonds is most financially feasible for systems with a large user base to spread repayment costs while maintaining reasonable fees.

### Other Financing Approaches

In some cases, systems are able to finance infrastructure improvements through local property taxes paid to local taxing districts created by city and/or county governments.

A **local improvement district** (LID) is a financing mechanism that allows municipalities to implement improvements, including to wastewater and drinking water systems, for property owners within a specified geographic area.<sup>70</sup> Property owners pay for the cost of the improvement through a local property tax levied for a fixed amount of time.<sup>71</sup>

A **community infrastructure district** (CID) is a financing mechanism that encourages the “funding and construction of regional community infrastructure in advance of actual developmental growth that creates a need for such infrastructure.”<sup>72</sup> Like LIDs, property owners within CIDs pay for the cost of the improvement through a local property tax levied for a fixed amount of time.<sup>73</sup>

An **urban renewal agency** (URA) is an independent public body created for the purpose of improving “deteriorated” areas.<sup>74</sup> URAs can implement a range of improvements in the specified urban renewal area, including to wastewater and drinking water infrastructure.<sup>75</sup> URAs receive and expense tax revenue based on increases in assessed property values above the value at the time of creation of the urban renewal area.<sup>76,i</sup>

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<sup>h</sup> Bonds are secured against a municipality's commitment to use sources of municipal revenue. Holders of general obligation bonds are required to pay back the loan using any legally available resource (e.g., tax dollars). Revenue bonds specify a certain type of revenue that must be used to pay off the loan, such as utility service fees. Utilities, such as wastewater and drinking water facilities, often use revenue bonds secured against revenue service fees. (Source: <https://www.sec.gov/munied>)

<sup>i</sup> For example, a property is assessed at \$100,000 at the time the urban renewal area is created and the following year the assessed property value increases to \$150,000. The URA tax revenue applies to the additional \$50,000 in assessed property value only.

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<sup>3</sup> “About Small Wastewater Systems”; Idaho Department of Environmental Quality, “Wastewater.”

<sup>4</sup> “About Small Wastewater Systems.”

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- <sup>7</sup> Federal Water Pollution Control Act.
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# Infrastructure Needs

Wastewater and drinking water **infrastructure needs** include rehabilitation, replacement and upgrades to address aging infrastructure and/or accommodate new regulations or population growth.<sup>1</sup> Infrastructure needs are most often expressed in terms of the cost of anticipated projects.<sup>2</sup>

## Estimating Infrastructure Needs

The CWA and SDWA require that the U.S. EPA conducts regular infrastructure needs assessments in partnership with states.<sup>3</sup> These assessments, the Clean Watersheds Needs Survey (CWNS) and the Drinking Water Infrastructure Needs Survey and Assessment (DWINSA), are widely cited sources of information on wastewater and drinking water infrastructure needs.<sup>4</sup> The DWINSA is used by the U.S. EPA to calculate the allocation of federal funding to each state's DWSRF and the CWNS is not used for the allocation of federal funding to the CWSRF.<sup>5</sup>

The CWNS and DWINSA ask wastewater and drinking water system managers to submit cost estimates for capital investments they have planned for the next 20 years.<sup>6</sup> Costs are based on estimates in engineering reports, the U.S. EPA Cost Estimation Tool or, where data are unavailable, statistical modeling.<sup>7</sup> Needs assessment results are published in reports to Congress.

It is not clear how accurate these estimates are for Idaho. See Appendix A for additional details on specific challenges associated with the CWNS and DWINSA in Idaho.

This report estimates more immediate wastewater and drinking water infrastructure needs using data from Idaho. Estimates are based on administrative data from the primary federal, state and non-profit entities that provide grants and/or loans to finance wastewater and drinking water infrastructure in Idaho. These data sources include the Idaho Bond Bank Authority (IBBA);<sup>a</sup> Idaho Community Development Block Grant (CDBG) program;<sup>b</sup> IDEQ;<sup>c</sup> National Rural Water Association Rural Water Loan Fund (RWLF)

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<sup>a</sup> The IBBA lends money to local governments within the state and is administered by the Idaho State Treasurer's Office. (Source: <https://sto.idaho.gov/Debt-Management/Idaho-Bond-Bank-Authority-IBBA>)

<sup>b</sup> The Idaho CDBG program is administered by the Idaho Department of Commerce. Using funds provided by HUD, the CDBG program finances multiple types of projects, including public facilities improvements. More information: <https://commerce.idaho.gov/communities/community-grants/community-development-block-grant-cdbg/>

<sup>c</sup> IDEQ offers financing through its CWSRF and DWSRF. More information: <https://www.deq.idaho.gov/water-quality/grants-and-loans/>

program;<sup>d</sup> USACE;<sup>e</sup> USDA Rural Development program;<sup>f</sup> U.S. EPA Community Grants<sup>g</sup>; U.S. EPA Small Underserved Disadvantaged Communities (SUDC)<sup>h</sup> grant program; and Water Infrastructure Finance and Innovation Act (WIFIA).<sup>i</sup> The data exclude needs in communities that did not seek funding from the above entities between state FY2019 and FY2026. See Appendix A for additional details about the data used in this analysis.

To estimate Idaho's wastewater and drinking water infrastructure needs, all available data on financing requests submitted to the entities listed above were combined with all available data on financing provided by the entities listed above. These data were harmonized and merged at the project and state fiscal year level to create a data set of Idaho wastewater and drinking water projects seeking and receiving financing from state FY2019 to FY2026. Need estimates throughout this report are calculated by state fiscal year, unless otherwise specified. See Appendix A for additional details on the methodology used in this analysis.

## Idaho's Wastewater Infrastructure Needs

Idaho's wastewater infrastructure needs are estimated to be \$617 million in FY2025 and, provisionally, at least \$730 million in FY2026.<sup>j</sup> In FY2022-FY2024, estimated infrastructure needs neared or surpassed \$1 billion annually. The increase in infrastructure needs from FY2021 to FY2022 may reflect that applicants responded to increased federal funding opportunities available through ARPA and IJIA and state funding from LIF.<sup>8</sup>

Not all wastewater infrastructure needs in Idaho are funded in a given fiscal year. The portion that is funded depends on the number and size of the financing requests and the funds available from federal, state and non-profit entities that finance wastewater infrastructure projects in Idaho. The greatest proportion of wastewater infrastructure needs funded was in FY2021 (80%). The smallest proportion funded was in FY2024 (14%), when available funding declined after supplemental ARPA funds were expended.

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<sup>d</sup> RWLF is a revolving fund that provides low-cost financing for smaller or short-term drinking water and wastewater projects and pre-development costs associated with larger projects. The RWLF is specifically designed to meet the needs of small systems. More information: <https://nrwa.org/members/products-services-portfolio/rural-water-loan-fund/>

<sup>e</sup> The USACE provides grants and technical expertise to support infrastructure improvements, including wastewater and drinking water infrastructure. More information: <https://www.usace.army.mil/About/Mission-and-Vision/>

<sup>f</sup> The USDA Rural Development program provides assistance to rural areas across the country, including Idaho. They offer technical assistance and financing for wastewater and drinking water systems. More information: <https://www.rd.usda.gov>

<sup>g</sup> The U.S. EPA Community Grants program administers direct federal appropriations for wastewater and drinking water systems. More information: <https://www.epa.gov/sustainable-water-infrastructure/epa-community-grants-program-basics>

<sup>h</sup> The SUDC, established under the federal Water Infrastructure Improvements for the Nation Act, provides non-competitive grants to support eligible communities in meeting SDWA requirements. More information: <https://www.epa.gov/dwcapacity/wiin-grant-small-underserved-and-disadvantaged-communities-grant-program-0>

<sup>i</sup> WIFIA is a federal financing program administered by the U.S. EPA for eligible wastewater and drinking water implementation projects. More information: <https://www.epa.gov/wifia/what-wifia>

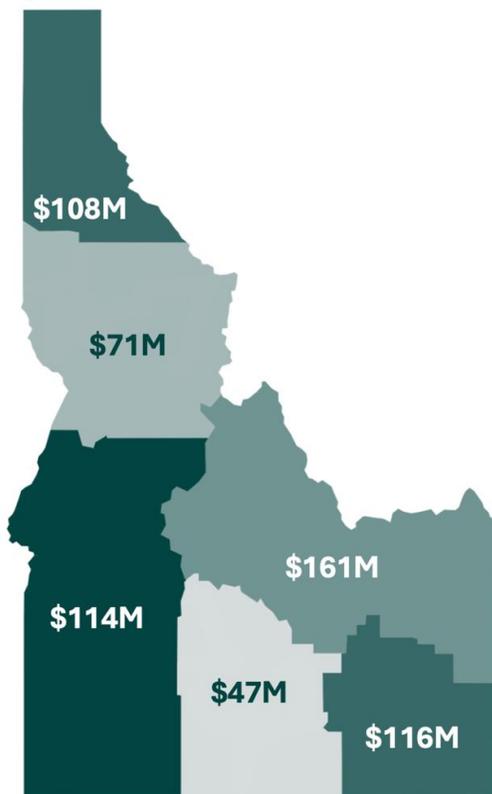
<sup>j</sup> Provisional data come from financing requests expressed in the FY2026 IDEQ Letter of Interest (LOI) process, which concluded in January 2025, and do not include data from other non-IDEQ financing opportunities. Not every system submits an LOI to IDEQ; wastewater infrastructure needs are likely greater than \$730 million.

Table 1 summarizes Idaho’s estimated wastewater infrastructure needs, amount funded and share funded, by state fiscal year.

<i>State Fiscal Year</i>	<i>Needs</i>	<i>Amount Funded</i>	<i>Share Funded</i>
2019	\$151.4M	\$66.3M	44%
2020	\$110.0M	\$69.3M	63%
2021	\$116.7M	\$93.4M	80%
2022	\$1,252.6M	\$306.7M	24%
2023	\$1,060.1M	\$242.1M	23%
2024	\$978.6M	\$140.9M	14%
2025	\$617.1M	*	*

\*FY2025 infrastructure funding is pending finalization. Source: Author’s calculations.

**Figure 6. Estimated Wastewater Infrastructure Needs in Idaho, by Region,<sup>k</sup> FY2025**



Source: Author’s calculations.

The scale of wastewater infrastructure needs varies across Idaho’s regions<sup>k</sup> (Figure 6). The greatest estimated wastewater infrastructure needs in FY2025 are in the eastern region (\$161 million) and the southeastern region (\$116 million) and the smallest estimated wastewater infrastructure needs are in the south-central region (\$47 million) and the north-central region (\$71 million).

<sup>k</sup> Regions are those used by IDEQ and the Idaho Department of Labor (IDOL).

## Box 2: Regulating Wastewater Discharges

The contents of treated wastewater discharged into waters of the U.S. in Idaho is regulated through the U.S. Environmental Protection Agency's permit system, administered by the Idaho Department of Environmental Quality (IDEQ)'s Idaho Pollutant Discharge Elimination System (IPDES).<sup>9</sup> IPDES permits contain limits and monitoring schedules for water characteristics, such as temperature and pH, and pollutants, including phosphorous, ammonia, nitrites, residual chlorine, suspended solids, dissolved solids and/or others.<sup>10</sup> Specific limits and monitoring schedules are determined based on the requirements of the federal Clean Water Act and site-specific characteristics of the permit recipient.<sup>11</sup> In a 2021 survey of Idaho wastewater system operators and managers, half of respondents indicated that infrastructure upgrades were needed in the next five years to meet permit requirements.<sup>12</sup>

## Idaho's Drinking Water Infrastructure Needs

Idaho's drinking water infrastructure needs are estimated to be \$369 million in FY2025 and, provisionally, at least \$335 million in FY2026.<sup>1</sup> In FY2023 and FY2024, they surpassed \$500 million annually. The increase in infrastructure needs from FY2022 to FY2023 may reflect that applicants responded to increased federal financing opportunities available through ARPA and IIJA and state funding from LIF.<sup>13</sup>

Not all drinking water infrastructure needs in Idaho are funded in a given fiscal year. The portion that is funded depends on the number and size of the financing requests and the funds available from federal, state and non-profit entities that finance drinking water infrastructure projects in Idaho. The greatest proportion of drinking water infrastructure needs funded was in FY2020 (93%). The smallest proportion funded was in FY2024 (14%), when drinking water infrastructure needs were at their highest.

Drinking water infrastructure needs are expected to increase in the future due to regulations related to contaminants in drinking water (Box 3).

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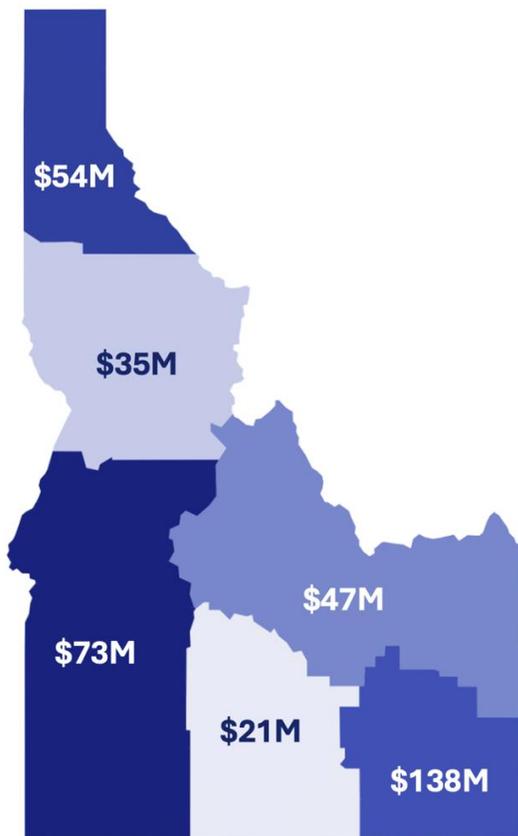
<sup>1</sup> Provisional data come from financing requests expressed in the FY2026 IDEQ Letter of Interest (LOI) process, which concluded in January 2025, and do not include data from other non-IDEQ financing opportunities. Not every system submits an LOI to IDEQ; drinking water infrastructure needs are likely greater than \$335 million.

Table 2 summarizes Idaho’s estimated drinking water infrastructure needs, amount funded and share funded, by state fiscal year.

<i>State Fiscal Year</i>	<i>Needs</i>	<i>Amount Funded</i>	<i>Share Funded</i>
2019	\$43.8M	\$11.2M	25%
2020	\$82.3M	\$76.6M	93%
2021	\$36.7M	\$26.1M	71%
2022	\$73.3M	\$22.4M	31%
2023	\$514.6M	\$143.6M	28%
2024	\$596.1M	\$80.8M	14%
2025	\$369.3M	*	*

\*FY2025 infrastructure funding is pending finalization. Source: Author’s calculations.

**Figure 7. Estimated Drinking Water Infrastructure Needs in Idaho, by Region,<sup>m</sup> FY2025**



Source: Author’s calculations.

The scale of drinking water infrastructure needs varies across Idaho’s regions<sup>m</sup> (Figure 7). The greatest estimated drinking water infrastructure needs in FY2025 are in the southeastern region (\$138 million) and the southwestern region (\$73 million) and the smallest estimated drinking water infrastructure needs are in the south-central region (\$21 million) and the north-central region (\$35 million).

<sup>m</sup> Regions are those used by IDEQ and IDOL.

### Box 3: Regulating Drinking Water Contaminants

Contaminants in drinking water are regulated through the U.S. Environmental Protection Agency (EPA)'s National Primary Drinking Water Regulations.<sup>14</sup> The Idaho Department of Environmental Quality (IDEQ) adopts and enforces these standards, many through Maximum Contaminant Levels (MCLs), which specify the highest permissible concentration of a contaminant in drinking water systems.<sup>15</sup>

Regulated contaminants fall into five main categories: microorganisms, disinfectants and disinfection byproducts, inorganic chemicals, organic chemicals and radionuclides.<sup>16</sup> In Idaho, regulated contaminants include total coliform bacteria, lead, arsenic, nitrate and, most recently, per- and poly-fluoroalkyl substances (PFAS).<sup>17</sup> More information on regulatory developments related to PFAS and lead can be found in Appendix B.

Every five years, the U.S. EPA releases a list of contaminants that are not yet regulated and are to be monitored by drinking water systems.<sup>18</sup> The monitoring process provides the U.S. EPA with data that are used to inform regulatory decisions.<sup>19</sup> Additional contaminants that have been identified through this process and are under consideration for regulation in drinking water include cyanotoxins released from harmful algal blooms and manganese, a naturally occurring mineral.<sup>20</sup>

Nationwide, drinking water system operators, managers and industry experts are concerned about systems' ability to achieve target levels of contaminants for both current and future regulations.<sup>21</sup>

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<sup>1</sup> "State of the Water Industry."

<sup>2</sup> "Drinking Water Infrastructure Needs Survey and Assessment (DWINSA): 7th Report to Congress" (U.S. Environmental Protection Agency, September 2023); U.S. Environmental Protection Agency, "2022 Clean Watersheds Needs Survey Report to Congress," 2022, <https://www.epa.gov/cwns/clean-watersheds-needs-survey-cwns-2022-report-and-data>; "Report Card for Idaho's Infrastructure" (American Society of Civil Engineers, 2018), <https://infrastructurereportcard.org/state-item/idaho/>; "Bridging the Gap: Economic Impacts of National Infrastructure Investment, 2024-2043" (American Society of Civil Engineers, May 2024), <https://bridgingthegap.infrastructurereportcard.org>; "2021 Infrastructure Report Card: Drinking Water" (American Society of Civil Engineers, n.d.), <https://infrastructurereportcard.org/state-item/idaho/>; "2021 Infrastructure Report Card: Wastewater" (American Society of Civil Engineers, n.d.), <https://infrastructurereportcard.org/state-item/idaho/>.

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<sup>4</sup> U.S. Environmental Protection Agency, "2022 Clean Watersheds Needs Survey Report to Congress"; "Drinking Water Infrastructure Needs Survey and Assessment (DWINSA): 7th Report to Congress."

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<sup>7</sup> "Drinking Water Infrastructure Needs Survey and Assessment (DWINSA): 7th Report to Congress"; "2022 Clean Watersheds Needs Survey Detailed Scope and Methods."

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<sup>10</sup> U.S. Environmental Protection Agency, "NPDES Permit Limits."

<sup>11</sup> U.S. Environmental Protection Agency, "NPDES Permit Basics."

<sup>12</sup> May and Osterhout, "Wastewater and Drinking Water Infrastructure Needs Survey."

<sup>13</sup> Infrastructure Investment and Jobs Act; American Rescue Plan Act; Office of the Governor, "Leading Idaho."

<sup>14</sup> Idaho Department of Environmental Quality, "Contaminants in Drinking Water," n.d., <https://www.deq.idaho.gov/water-quality/drinking-water/contaminants-in-drinking-water/>; U.S. Environmental Protection Agency, "National Primary Drinking Water Regulations," n.d.

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<sup>15</sup> U.S. Environmental Protection Agency, "National Primary Drinking Water Regulations."

<sup>16</sup> U.S. Environmental Protection Agency, "National Primary Drinking Water Regulations."

<sup>17</sup> Idaho Department of Environmental Quality, "Contaminants in Drinking Water"; "PFAS National Primary Drinking Water Regulation."

<sup>18</sup> U.S. Environmental Protection Agency, "Learn About the Unregulated Contaminant Monitoring Rule," n.d., <https://www.epa.gov/dwucmr/learn-about-unregulated-contaminant-monitoring-rule>.

<sup>19</sup> U.S. Environmental Protection Agency, "Learn About the Unregulated Contaminant Monitoring Rule."

<sup>20</sup> U.S. Environmental Protection Agency, "Learn About the Unregulated Contaminant Monitoring Rule."

<sup>21</sup> "State of the Water Industry."

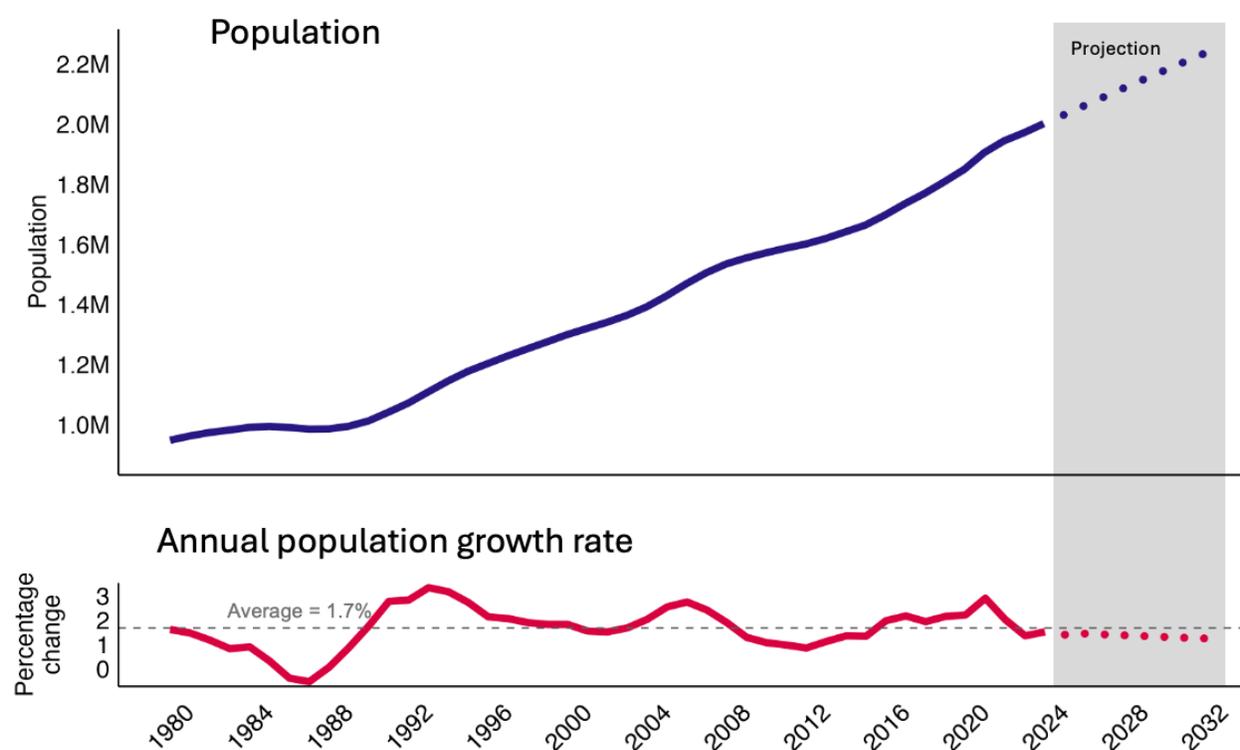
# Growth and Infrastructure

Wastewater and drinking water system managers identified growth as a top driver of infrastructure needs in Idaho.<sup>1,a</sup> Population and housing growth put pressure on existing wastewater and drinking water systems.

## Population Growth

Idaho's population is growing.<sup>2</sup> Additional people require additional wastewater and drinking water services and infrastructure.

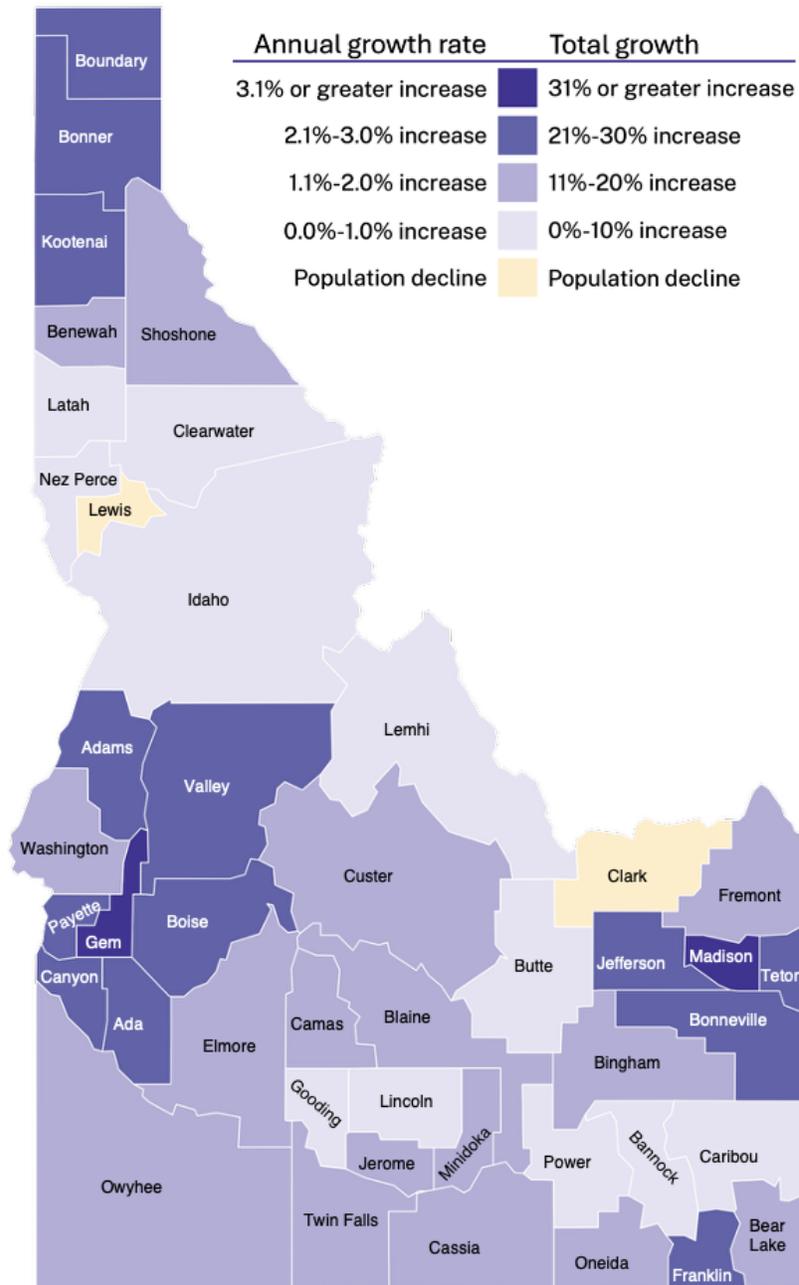
**Figure 8. Population Growth in Idaho, 1980-2032**



Source: U.S. Census Bureau Population and Housing Unit Estimates. Idaho Department of Labor Population Projections, 2022.

<sup>a</sup> Population growth occurs through a combination of migration, births and deaths. The change in Idaho's population is the difference between all new residents in Idaho, including babies born and people moving in, and those who died or moved away.

**Figure 9. Population Growth in Idaho, by County, 2015-2024**



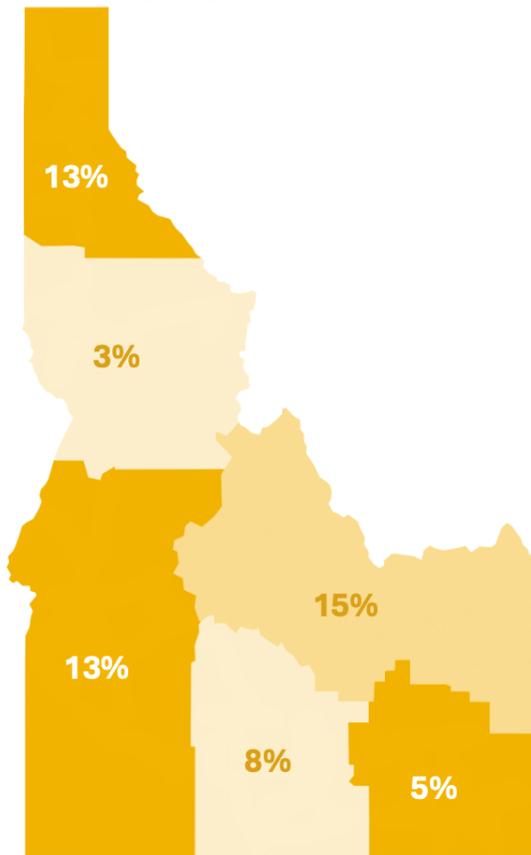
Source: U.S. Census Bureau Population Estimates Program Intercensal and Vintage 2024 Population and Housing Unit Estimates.

Idaho’s population has more than doubled since 1980 and reached just over 2 million people in 2024 (Figure 8).<sup>3</sup> The average annual population growth rate<sup>b</sup> between 1980 and 2024 was 1.7%.<sup>4</sup> The most recent period of population decline in Idaho was 1986-1987, after which Idaho grew every year.<sup>5</sup> Peak annual population growth rates in Idaho occurred in the early 1990s, in the mid-2000s and in 2021.<sup>6</sup>

Idaho’s population growth was not evenly distributed across the state (Figure 9).<sup>7</sup> Over the past decade, 12 of 44 counties have grown by more than 20%, 17 counties have grown 11%-20%, 13 counties have grown 10% or less and two counties have lost population.<sup>8</sup> Population growth was concentrated in counties associated with three of Idaho’s major cities: Coeur d’Alene, Boise and Idaho Falls.<sup>9</sup>

<sup>b</sup> The annual population growth rate measures how fast Idaho’s population is growing by comparing the change in population to the previous year’s population.

**Figure 10. Projected Population Growth in Idaho, by Region, 2025-2032**



Source: Idaho Department of Labor Population Projections, 2022.

Idaho’s population is projected<sup>c</sup> to continue to grow from just over 2 million people in 2024 to 2.2 million people by 2032, the latest year for which state-level projections have been calculated (Figure 8).<sup>10</sup> This represents an annual population growth rate of 1.45% between 2024 and 2032.<sup>11</sup>

Projected population growth varies across Idaho’s regions.<sup>d</sup> The eastern region has the largest projected population growth (15%), followed by the southwestern region (13%) and the northern region (13%) (Figure 10).

Projected population growth across Idaho indicates ongoing need for wastewater and drinking water infrastructure to serve the growing population. Approaches to financing growth-related infrastructure improvements are described in Box 4.

#### Box 4: Financing Growth-Related Infrastructure Improvements

Connection fees and development impact fees are used to fund both wastewater and drinking water systems in the context of population and housing growth.<sup>12</sup> Wastewater and drinking water systems may use tax revenues generated by local improvement districts, community infrastructure districts and urban renewal agencies to support infrastructure projects.<sup>13</sup> The Drinking Water State Revolving Fund cannot fund infrastructure needs related to growth beyond a “reasonable” amount of population growth over the useful life of the project.<sup>14</sup> The Clean Water State Revolving Fund is not explicitly limited in funding growth-related projects.<sup>15</sup>

<sup>c</sup> Population projections use migration trends, birth rates, death rates and the current age distribution of the population to estimate how quickly and in what direction a population may change in the future.

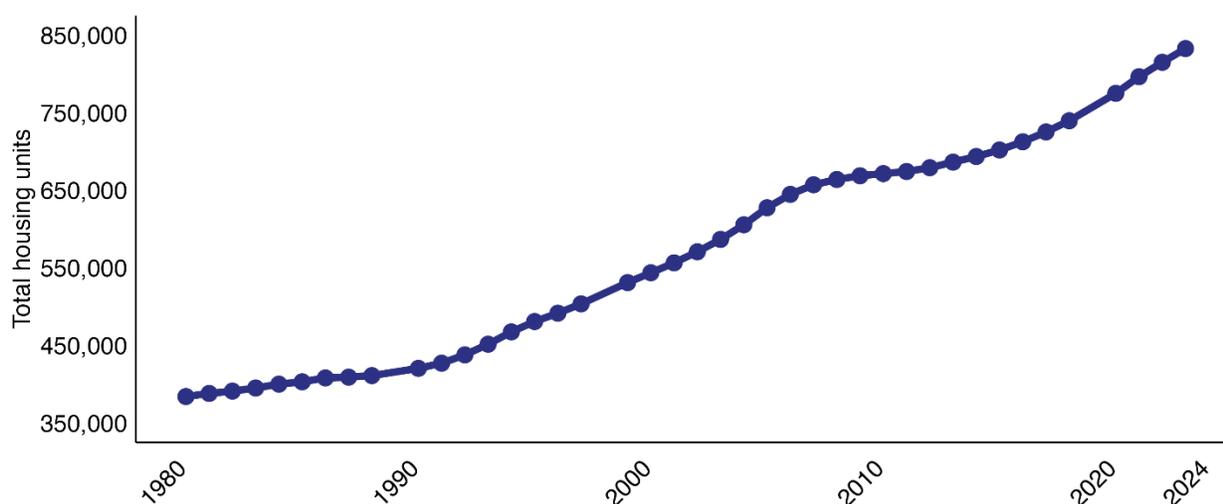
<sup>d</sup> Regions are those used by IDEQ and IDOL.

## Housing Unit Growth

Additional housing that is constructed to accommodate population growth leads to wastewater and drinking water infrastructure expansion as some homes are connected to wastewater and drinking water systems.

The number of housing units in Idaho has more than doubled since 1981, reaching an estimated 832,000 in 2024 (Figure 11).<sup>16</sup> A **housing unit** is a house, an apartment, a mobile home or trailer, a group of rooms or a single room that is occupied or, if vacant, is intended for occupancy as separate living quarters.<sup>17</sup>

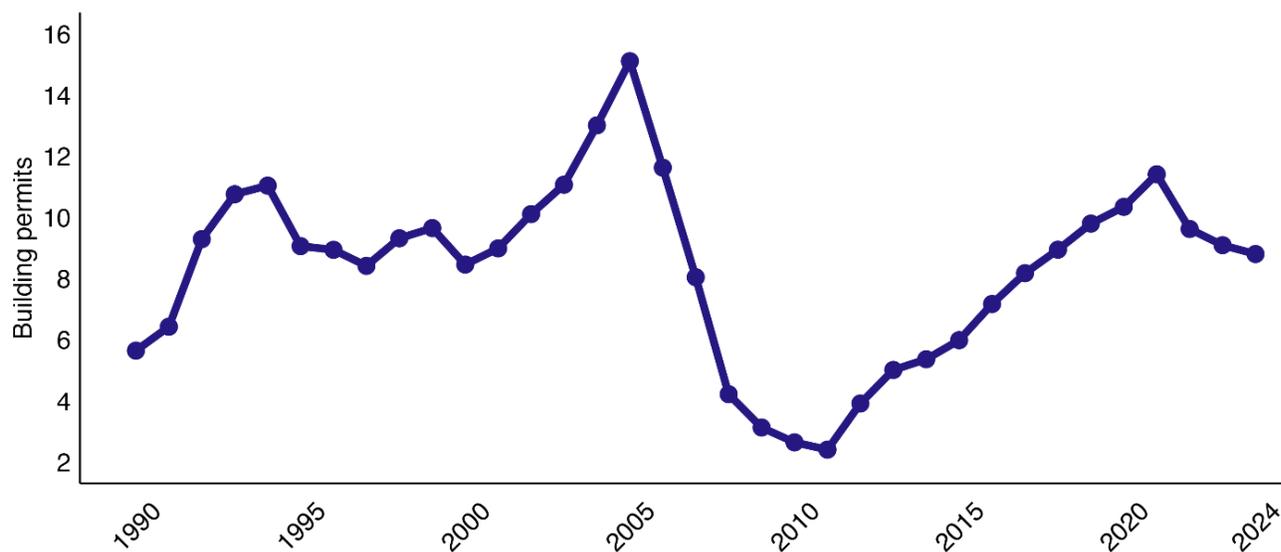
**Figure 11. Total Housing Units in Idaho, 1981-2024**



Source: U.S. Census Bureau Population and Housing Unit Estimates. Note: Data from 1990, 1999 and 2020 are not available.

Cities and counties in Idaho issued residential building permits for an estimated 430,427 new privately-owned housing units between 1990 and 2024.<sup>18</sup> In Idaho, annual building permits peaked in 2005, dropped during the Great Recession, then rose from 2011 to 2021 (Figure 12).<sup>19</sup> Data are not available on the size of housing units that were issued building permits nor whether they were connected to wastewater and drinking water systems.

**Figure 12. Residential Building Permits per 1,000 People in Idaho, 1990-2024**



Source: U.S. Census Bureau Building Permits Survey.

Newly constructed homes may be connected to wastewater and drinking water systems or they may rely on individual septic systems and/or wells. In Idaho, subdivisions can be constructed in which each home has an individual septic system and/or well.<sup>20</sup>

Septic systems are not explicitly regulated under the CWA and in Idaho they are regulated by IDEQ and Idaho Public Health Districts.<sup>21</sup> Domestic wells are not subject to the same safety regulations as drinking water systems under the SDWA.<sup>22</sup>

For a developer or a homeowner, whether to connect a newly constructed home to wastewater and drinking water systems or an individual septic system and/or well depends on several factors. These include the physical location of existing wastewater and drinking water systems and state, county, municipal, health district and water/sewer district legal requirements where the home is located.

### New Connections to Wastewater and Drinking Water Systems

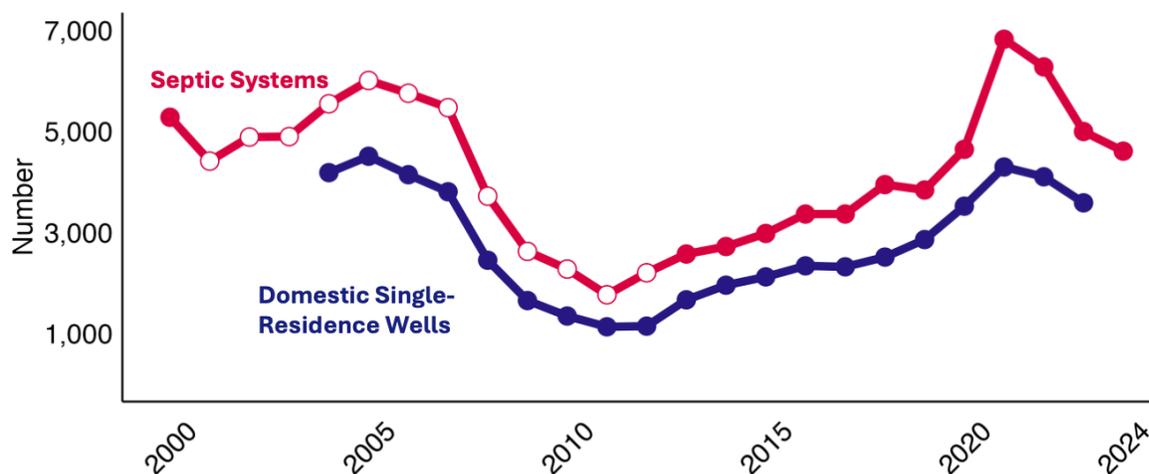
Data on whether newly constructed homes connect to wastewater and drinking water systems are not directly collected for Idaho. The best available estimates for Idaho indicate that, between 2011 and 2023, approximately 65% of newly constructed homes connected to wastewater systems and 77% connected to drinking water systems.<sup>23</sup> This is consistent with estimates at the regional level, which report that a majority of newly constructed homes connect to these systems.<sup>24</sup>

## New Connections to Individual Septic Systems and Wells

Newly constructed homes not connected to wastewater systems are likely to be connected to individual septic systems.<sup>25</sup> Newly constructed homes not connected to drinking water systems are likely to be connected to individual wells.<sup>26</sup>

Trends in the number of new septic systems in Idaho mirror the number of new wells associated with new single-family homes (Figure 13). Since 2000, the number of new septic systems and new wells in Idaho peaked in 2005 and 2021, with a decline during the Great Recession.<sup>27</sup> Septic and well trends correspond to building permit trends (Figure 12) and population growth (Figure 8).<sup>28</sup>

**Figure 13. New Septic Systems and Domestic Single-Residence Wells in Idaho, 2000-2024**



Source: Data obtained on request from Idaho Department of Environmental Quality and Idaho Department of Water Resources. Note: Closed circles are counts based on administrative data. Open circles are estimates.<sup>e</sup> Data on new wells are not available for 2000-2003 and 2024.

<sup>e</sup> Data on new septic systems are not available for specific geographic areas of Idaho between 2001 and 2012. Estimates for these years are comprised of counts of available data and imputed values for areas with missing data.

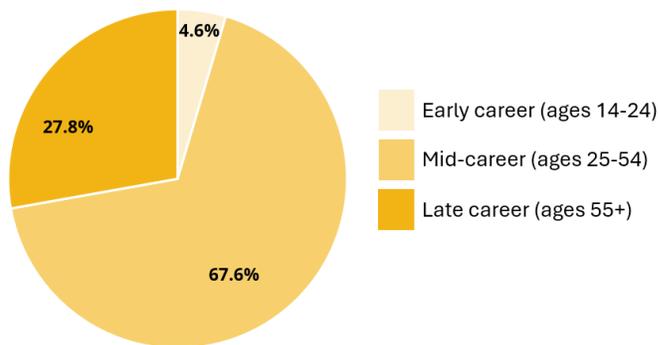
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- <sup>1</sup> May and Osterhout, "Wastewater and Drinking Water Infrastructure Needs Survey."
- <sup>2</sup> "Population and Housing Unit Estimates."
- <sup>3</sup> "Population and Housing Unit Estimates."
- <sup>4</sup> "Population and Housing Unit Estimates."
- <sup>5</sup> "Population and Housing Unit Estimates."
- <sup>6</sup> "Population and Housing Unit Estimates."
- <sup>7</sup> "Population and Housing Unit Estimates."
- <sup>8</sup> "Population and Housing Unit Estimates."
- <sup>9</sup> "Population and Housing Unit Estimates."
- <sup>10</sup> "Population Projections 2022-2032."
- <sup>11</sup> "Population Projections 2022-2032."
- <sup>12</sup> "Development Impact Fees: Title 67, Chapter 82"; North Idaho Building Contractors Association v. City of Hayden; Loomis v. City of Hailey.
- <sup>13</sup> "Community Infrastructure District Act: Title 50, Chapter 31"; "Local Improvement District Code: Title 50, Chapter 17."; "Urban Renewal Law: Title 50, Chapter 20."
- <sup>14</sup> U.S. Environmental Protection Agency, "Drinking Water State Revolving Fund Eligibility Handbook."
- <sup>15</sup> "Overview of Clean Water State Revolving Fund Eligibilities."
- <sup>16</sup> "Population and Housing Unit Estimates."
- <sup>17</sup> "Group Quarters and Housing Unit Estimates Terms and Definitions," October 8, 2021, <https://www.census.gov/programs-surveys/popest/about/glossary/housing.html>.
- <sup>18</sup> "Building Permits Survey" (U.S. Census Bureau, 2024), <https://www.census.gov/construction/bps/index.html>.
- <sup>19</sup> "Building Permits Survey."
- <sup>20</sup> Idaho Water Users Association, "Idaho's Domestic Use Exemption" (Idaho Water Users Association, July 15, 2024).
- <sup>21</sup> Idaho Department of Environmental Quality, "Septic and Septage," n.d., <https://www.deq.idaho.gov/water-quality/wastewater/septic-and-septage/>.
- <sup>22</sup> "Public Law 99-339: Safe Drinking Water Act Amendments of 1986."
- <sup>23</sup> "Population and Housing Unit Estimates"; Erik Boe and Cody Parker, "Memo: Domestic Well Construction and Domestic Water Right Activities in Idaho" (Idaho Department of Water Resources, February 23, 2024); "Grand Total of Issued Septic Permits" (Idaho Department of Environmental Quality, 2025), Obtained on request.
- <sup>24</sup> "Survey of Construction Microdata" (U.S. Census Bureau, 2024).
- <sup>25</sup> "Survey of Construction Microdata."
- <sup>26</sup> "Survey of Construction Microdata."
- <sup>27</sup> "Grand Total of Issued Septic Permits"; Boe and Parker, "Memo: Domestic Well Construction and Domestic Water Right Activities in Idaho."
- <sup>28</sup> "Grand Total of Issued Septic Permits"; Boe and Parker, "Memo: Domestic Well Construction and Domestic Water Right Activities in Idaho."

# The Wastewater and Drinking Water Workforce

The **wastewater and drinking water workforce** encompasses those working directly with physical infrastructure, including operators and technicians, and many associated jobs, such as office clerks, bookkeepers, managers, engineers and tradespeople.<sup>1</sup> The most detailed occupational data are available for wastewater and drinking water **system operators**, a specific job within the larger sector, which requires a license in Idaho.<sup>2</sup> Nationally, there were an estimated 126,750 wastewater and drinking water system operators in 2024, of which 1,100 were in Idaho.<sup>3,a</sup>

Operators and associated jobs, such as managers, maintenance workers, electricians and plumbers, are considered “in-demand careers” in Idaho.<sup>4</sup> From February 2024 to January 2025 in Idaho, there were, on average, 16 job postings and 28 hires per month for wastewater and drinking water system operators alone, plus additional postings and hirings for related jobs in the sector.<sup>5</sup>

**Figure 14. Estimated Age Distribution of Wastewater and Drinking Water Operators in Idaho, 2025**



Source: Lightcast and Idaho Department of Labor. “Water and Wastewater Treatment Plant and System Operators in Idaho.”

As the population of Idaho and the U.S. ages, there is concern about replacing workers as they enter into retirement.<sup>6</sup> Estimates of the ages of wastewater and drinking water operators in Idaho suggest that two-thirds of workers are ages 35-54 and just over one-quarter are ages 55 and older (Figure 14).<sup>7</sup> This is similar to the age of wastewater and drinking water operators in the U.S. as a whole.<sup>8</sup>

Idaho has one registered apprenticeship program for wastewater and drinking water system operators, launched in 2018 by the Idaho Rural Water Association.<sup>9</sup> Most participants join the program while working in the wastewater and drinking water sector.<sup>10</sup> Since its inception, the apprenticeship program has enrolled 136 individuals.<sup>11</sup>

<sup>a</sup> Some systems, particularly transient systems, such as those at gas stations or campgrounds, rely on contract operators that provide services to multiple systems at once.

## Wages, Geography and Career Mobility

Wastewater and drinking water systems offer jobs with opportunities related to wages, geography and career mobility.<sup>12</sup> The many opportunities for workers within the sector may create challenges for recruitment and retention, especially for small systems.<sup>13</sup>

### Wages

In 2024, the median wage for wastewater and drinking water operators in Idaho was \$53,250/year.<sup>14</sup> This was higher than the median wage across all occupations in Idaho (\$46,470/year) and above the national median wage (\$49,500/year).<sup>15</sup> It was lower than the median wage for wastewater and drinking water operators nationally (\$58,260/year).<sup>16</sup>

Information on the wastewater and drinking water workforce more broadly is available for city employees in Idaho.<sup>17</sup> The estimated median annual wage of wastewater- and drinking water-related workers employed by cities in Idaho in 2024 was \$55,400.<sup>18,b</sup> This was higher than the 2024 median annual wage for all occupations in Idaho (\$46,470).<sup>19</sup>

Cities in Ada, Blaine, Boundary, Kootenai, Lemhi, Nez Perce and Payette counties offered wastewater and drinking water operators higher median wages (over \$60,000) than cities in other counties in Idaho (Figure 15).<sup>20</sup> Cities in Custer and Elmore counties offered the lowest median wages (\$30,000-\$39,999).<sup>21</sup>

### Geography

Economic opportunities extend beyond competitive wages for workers in the wastewater and drinking water sector. Because wastewater and drinking water services are required wherever there are people, wastewater and drinking water jobs are geographically dispersed.<sup>22</sup> This is unlike many industries that tend to cluster geographically based on market factors, requiring workers to live in specific places to find jobs.<sup>23</sup>

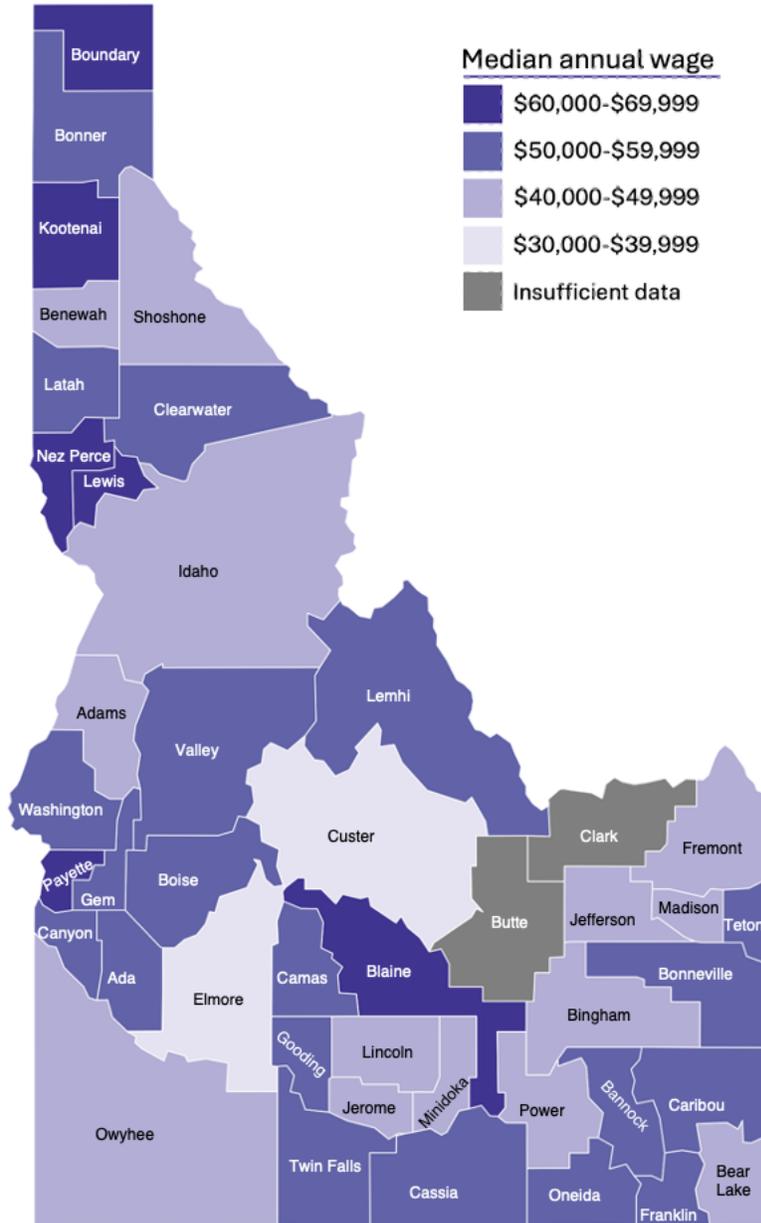
### Career Mobility

The wastewater and drinking water sector has a range of positions that require different skills and qualifications.<sup>24</sup> Entry-level positions are available for those with a high school diploma or less, as well as many positions for those who pursue additional on-the-job training and education, and experience is highly valued in the industry.<sup>25</sup> Many workers transition into the wastewater and drinking water sector from maintenance and repair positions, as well as from trades, such as plumbing, electrical and construction.<sup>26</sup> This combination of factors offers mobility to workers with varying backgrounds who are able to build their experience and qualifications.

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<sup>b</sup> This includes licensed operators, technicians, maintenance workers, engineers and other wastewater- and/or drinking water-related workers who work for Idaho cities and excludes those working for water districts, sewer districts and private companies. Wage data for employees of water systems not affiliated with a city are not available.

**Figure 15. Median Annual Wage for City Wastewater and Drinking Water Workers in Idaho, by County, 2024**



Source: Transparent Idaho, 2024. Note: Data include salaries for city employees only.

High demand, competitive wages, geographic dispersion and career mobility create opportunities for workers and, in some cases, challenges for wastewater and drinking water employers.<sup>27</sup> These factors can make it difficult to attract and retain high quality workers, particularly for small systems that may struggle to balance pay and benefits with affordable service fees, and for systems located in places with a high cost of living.<sup>28</sup>

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- <sup>1</sup> Kane and Tomer, "Renewing the Water Workforce."
- <sup>2</sup> "Rules of the Board of Drinking Water and Wastewater Professionals (24.05.01)" (Idaho Division of Occupational and Professional Licenses, n.d.), <https://adminrules.idaho.gov/rules/current/24/240501.pdf>.
- <sup>3</sup> "Occupational Employment and Wage Statistics (OEWS)" (U.S. Bureau of Labor Statistics, May 2024), <https://www.bls.gov/oes/tables.htm>.
- <sup>4</sup> "Idaho LAUNCH In-Demand Careers: Class of 2024"; "Idaho LAUNCH In-Demand Careers: Class of 2025."
- <sup>5</sup> Lightcast and Idaho Department of Labor, "Water and Wastewater Treatment Plant and System Operators in Idaho."
- <sup>6</sup> Ezra Greenberg, Erik Schaefer, and Brooke Weddle, "Tradespeople Wanted: The Need for Critical Trade Skills in the US" (McKinsey & Company, April 2024); Charles H. Jones and Mikael Dolsten, "Healthcare on the Brink: Navigating the Challenges of an Aging Society in the United States," *Npj Aging* 10, no. 1 (April 6, 2024): 22, <https://doi.org/10.1038/s41514-024-00148-2>; Earlene K.P. Dowell, "Manufacturing Faces a Labor Shortage as Workforce Ages" (U.S. Census Bureau, November 17, 2020), <https://www.census.gov/library/stories/2020/11/manufacturing-faces-labor-shortage-as-workforce-ages.html>; Rod Motamedi, Annie Alexander, and Michael McNally, "Aging of the State and Local Government Workforce" (University of Massachusetts: Donahue Institute, 2023), Obtained on request.
- <sup>7</sup> Lightcast and Idaho Department of Labor, "Water and Wastewater Treatment Plant and System Operators in Idaho."
- <sup>8</sup> Lightcast and Idaho Department of Labor, "Water and Wastewater Treatment Plant and System Operators in the United States," Occupational Snapshot Report, 2025.
- <sup>9</sup> "Idaho Rural Water Association Apprenticeship Program," accessed April 24, 2025, [https://www.idrwa.org/apprenticeship\\_program.php](https://www.idrwa.org/apprenticeship_program.php).
- <sup>10</sup> Idaho Rural Water Association, "Apprenticeship Program Data," 2025, Obtained on request.
- <sup>11</sup> Idaho Rural Water Association, "Apprenticeship Program Data."
- <sup>12</sup> Kane and Tomer, "Renewing the Water Workforce"; Lightcast and Idaho Department of Labor, "Water and Wastewater Treatment Plant and System Operators in Idaho."
- <sup>13</sup> "State of the Water Industry"; Kane and Tomer, "Renewing the Water Workforce."
- <sup>14</sup> "Occupational Employment and Wage Statistics (OEWS)," May 2024.
- <sup>15</sup> "Occupational Employment and Wage Statistics (OEWS)," May 2024.
- <sup>16</sup> "Occupational Employment and Wage Statistics (OEWS)," May 2024.
- <sup>17</sup> "Transparent Idaho: City Salaries" (Office of the Idaho State Controller, June 30, 2024); "Occupational Employment and Wage Statistics (OEWS)," May 2023.
- <sup>18</sup> "Transparent Idaho: City Salaries"; "Author's Calculations."
- <sup>19</sup> "Occupational Employment and Wage Statistics (OEWS)," May 2024.
- <sup>20</sup> "Transparent Idaho: City Salaries"; "Author's Calculations."
- <sup>21</sup> "Transparent Idaho: City Salaries"; "Author's Calculations."
- <sup>22</sup> Kane and Tomer, "Renewing the Water Workforce."
- <sup>23</sup> Kane and Tomer, "Renewing the Water Workforce."
- <sup>24</sup> Kane and Tomer, "Renewing the Water Workforce."
- <sup>25</sup> Kane and Tomer, "Renewing the Water Workforce."
- <sup>26</sup> Lightcast and Idaho Department of Labor, "Water and Wastewater Treatment Plant and System Operators in Idaho."
- <sup>27</sup> "State of the Water Industry"; Kane and Tomer, "Renewing the Water Workforce."
- <sup>28</sup> "State of the Water Industry"; Kane and Tomer, "Renewing the Water Workforce."

# Appendix A: Additional Detail on Infrastructure Needs Estimates

## Methodology Notes

This report estimates wastewater and drinking water infrastructure needs using data from Idaho. Estimates are based on administrative data from the primary federal, state and non-profit entities that provide loans and/or grants to finance wastewater and drinking water infrastructure in Idaho. These data sources are described in Table A1.

**Table A1: Data Sources**

Source	Description	Website
Idaho Bond Bank Authority (IBBA)	The IBBA lends money to local governments within the state. It is administered by the Idaho State Treasurer’s Office.	<a href="https://sto.idaho.gov/Debt-Management/Idaho-Bond-Bank-Authority-IBBA">https://sto.idaho.gov/Debt-Management/Idaho-Bond-Bank-Authority-IBBA</a>
Idaho Community Development Block Grant (CDBG) Program	The Idaho CDBG program provides grants for multiple types of projects, including public facilities improvements. It is administered by the Idaho Department of Commerce using funding from the U.S. Department of Housing and Urban Development.	<a href="https://commerce.idaho.gov/communities/community-grants/community-development-block-grant-cdbg/">https://commerce.idaho.gov/communities/community-grants/community-development-block-grant-cdbg/</a>
Idaho Clean Water State Revolving Fund (CWSRF)	The Idaho CWSRF provides low-cost loans, loan forgiveness and grants to support planning and implementation of wastewater infrastructure improvements. It is administered by the Idaho Department of Environmental Quality (IDEQ).	<a href="https://www.deq.idaho.gov/water-quality/grants-and-loans/">https://www.deq.idaho.gov/water-quality/grants-and-loans/</a>
Idaho Drinking Water State Revolving Fund (DWSRF)	The Idaho DWSRF provides low-cost loans, loan forgiveness and grants to support planning and implementation of drinking water infrastructure improvements. It is administered by IDEQ.	<a href="https://www.deq.idaho.gov/water-quality/grants-and-loans/">https://www.deq.idaho.gov/water-quality/grants-and-loans/</a>
National Rural Water Loan Fund (RWLF)	The National RWLF provides low-cost financing to support planning and implementation of wastewater and drinking water infrastructure for small systems. It is administered by the National Rural Water Association.	<a href="https://nrwa.org/members/products-services-portfolio/rural-water-loan-fund/">https://nrwa.org/members/products-services-portfolio/rural-water-loan-fund/</a>

U.S. Army Corps of Engineers (USACE)	The USACE provides grants and technical expertise to support infrastructure improvements, including wastewater and drinking water infrastructure.	<a href="https://www.usace.army.mil/About/Mission-and-Vision/">https://www.usace.army.mil/About/Mission-and-Vision/</a>
U.S. Department of Agriculture (USDA) Rural Development Program	The Rural Development program provides financing and technical assistance for rural areas, including wastewater and drinking water systems. It is administered by USDA.	<a href="https://www.rd.usda.gov/programs-services/water-environmental-programs">https://www.rd.usda.gov/programs-services/water-environmental-programs</a>
U.S. Environmental Protection Agency (EPA) Community Grants	The Community Grants program administers direct federal appropriations for drinking water and wastewater systems. It is administered by the U.S. EPA.	<a href="https://www.epa.gov/sustainable-water-infrastructure/epa-community-grants-program-basics">https://www.epa.gov/sustainable-water-infrastructure/epa-community-grants-program-basics</a>
U.S. EPA Small Underserved Disadvantaged Communities (SUDC) Grant Program	The SUDC provides non-competitive grants to support eligible communities in meeting Safe Drinking Water Act requirements. It is administered by the U.S. EPA.	<a href="https://www.epa.gov/dwcapacity/wiin-grant-small-underserved-and-disadvantaged-communities-grant-program-0">https://www.epa.gov/dwcapacity/wiin-grant-small-underserved-and-disadvantaged-communities-grant-program-0</a>
Water Infrastructure Finance and Innovation Act (WIFIA)	The WIFIA is a federal financing program for eligible wastewater and drinking water implementation projects. It is administered by the U.S. EPA.	<a href="https://www.epa.gov/wifia/what-wifia">https://www.epa.gov/wifia/what-wifia</a>

To avoid double-counting, Idaho wastewater and drinking water projects were cross-checked across administrative data sources using project descriptions, timing and other information to identify Idaho wastewater and drinking water systems requesting or receiving co-financing from multiple sources for a single project.

A strength of the methodology used in this analysis is that the data include wastewater and drinking water infrastructure needs that Idaho system managers are requesting immediately, rather than needs anticipated over the next 20 years. The immediacy of these infrastructure needs increases the likelihood of accurate cost estimation.

Limitations of the methodology stem from the financial, technical and human resources required to request financing. Wastewater and drinking water systems in Idaho that do not have administrative capacity to coordinate a financing application process may be left out of this analysis. Additionally, when financing opportunities are scarce, or are perceived to be scarce, entities may opt not to expend resources on applying. The inverse also may be true, as suggested by increases in financing applications from Idaho upon release of federal American Rescue Plan Act (ARPA) and Infrastructure Investment and Jobs Act (IIJA) and state Leading Idaho Funding (LIF) opportunities in recent years. For these reasons, Idaho’s total estimated wastewater and drinking water infrastructure needs as described in this report may be an underestimation.

An additional limitation relates to the data sources. The data used in this report are from financing applications from a variety of public sources (Table A1), which may not be comprehensive. Data on financing applications to private entities, such as banks, are not available. Estimates from a non-representative 2021 survey in Idaho indicate that private financing may be relevant for up to 20% of wastewater system respondents and 26% of drinking water system respondents.<sup>1</sup> How often systems in Idaho seek private financing and the extent to which they finance entire projects compared to select portions is not known. This data limitation may lead to underestimation of project funding received.

## Needs Assessment Challenges in Idaho

Specific challenges associated with the Clean Watersheds Needs Survey (CWNS) and Drinking Water Infrastructure Needs Survey and Assessment (DWINSA) in Idaho include:

1. Anticipating physical infrastructure needs and costs over a 20-year time horizon is imprecise, particularly in a state that is growing rapidly like Idaho.<sup>2</sup> Physical infrastructure needs change with individual system conditions and federal and state regulatory requirements. Project costs evolve with market-driven costs, such as labor and materials.
2. Some system managers may not have financial or technical resources to estimate project costs, such as a facility plan, leading them to submit inaccurate or out-of-date cost information, or to not submit information at all.
3. Some systems may not have the human resources to supply information required by needs assessments. Supplying such information involves a financial and/or time investment by system managers. Where resources are limited and participation is optional, supplying this information may not be a priority.
4. The CWNS and DWINSA have less stringent requirements for certain states, including Idaho, such as optional participation and limited data collection for some types of systems. This affects the accuracy of the final infrastructure needs estimates produced in needs assessment reports.<sup>a</sup>

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<sup>a</sup> Certain states, including Idaho, which are likely to receive the minimum SRF allotment amount due to their relatively small population, are called “partial participating states” and are not required to fully participate in the DWINSA needs assessment. Need estimates for partial participating states “do not meet the data quality objectives for the survey.” For more information see DWINSA, 7<sup>th</sup> Report to Congress, page 12. (Source: <https://www.epa.gov/dwsrf/epas-7th-drinking-water-infrastructure-needs-survey-and-assessment>)

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<sup>1</sup> May and Osterhout, “Wastewater and Drinking Water Infrastructure Needs Survey.”

<sup>2</sup> “Population and Housing Unit Estimates”; “Population Projections 2022-2032.”

# Appendix B: Contaminants in Drinking Water

## Per- and Polyfluoroalkyl Substances (PFAS)

Per- and Polyfluoroalkyl Substances, or PFAS, are widely-used chemicals that are highly persistent in the environment and may pose a risk to human health.<sup>1</sup> Among emerging contaminants, PFAS (including PFOA and PFOS) are the top concern of the majority of wastewater and drinking water system operators, managers and industry experts nationwide.<sup>2</sup> PFAS have been detected in water, air, soil and the blood of people and animals globally.<sup>3</sup> The persistence and mobility of PFAS, as well as the large number of chemicals in that grouping, make it difficult to study environmental and health risks.<sup>4</sup> In 2024, the U.S. Environmental Protection Agency (EPA) finalized regulations for certain types of PFAS in drinking water.<sup>5</sup> These regulations require drinking water systems to begin monitoring for these PFAS and provide the public with information on PFAS in their drinking water by 2027 and to take action on PFAS levels by 2029.<sup>6</sup>

Removing PFAS from drinking water is currently expensive.<sup>7</sup> The cost of removing PFAS from drinking water systems in the U.S. is estimated at over \$3 billion annually over the next 20 years.<sup>8</sup> If these costs were distributed across users, they could range from approximately \$10,000 annually per household for drinking water systems with 100 or fewer connections to approximately \$4,000 annually for households in systems with 101-500 connections.<sup>9</sup> In Idaho, 59% of drinking water systems have 100 or fewer connections and 29% of systems have 101-500 connections.<sup>10</sup>

Public financing options for PFAS removal may reduce the cost burden, particularly for small system users. The federal Infrastructure Investment and Jobs Act (IIJA) appropriated \$5 billion in grant funding to states and federally-recognized tribes to address emerging contaminants between federal FY2022 and FY2026.<sup>11</sup> Idaho disbursed \$2.5 million of these funds in state FY2024 and committed \$6.4 million to state FY2025 projects.<sup>12</sup>

In Idaho, some drinking water systems voluntarily tested for PFAS. Of the 2,016 drinking water systems in Idaho, 201 voluntarily tested between 2021 and 2024.<sup>13</sup> Of those, 37 detected at least one type of PFAS.<sup>14</sup> Of the 37 systems, 30 detected more than one type of PFAS.<sup>15</sup> Testing locations where PFAS were detected included wells and surface water in both rural and urban areas.<sup>16</sup> Voluntary testing may not represent the presence and distribution of PFAS across the state as a whole. Existing data are not comprehensive enough to determine whether, in Idaho's drinking water systems where PFAS were detected, the levels of specific PFAS would comply with the updated requirements in the U.S. EPA 2024 drinking water regulations.

## Lead Service Lines

Service lines that bring water into homes and businesses are a leading source of lead exposure in the U.S.<sup>17</sup> Lead poisoning damages the nervous system, including the brain, and is particularly dangerous for infants and children.<sup>18</sup>

Lead pipes and galvanized steel pipes that are or were downstream of lead pipes can release particles of lead into the water they carry.<sup>19</sup> The installation of lead pipes began in the late 1800s and was prohibited beginning in 1986; many drinking water systems have pipes or connections that pre-date this prohibition.<sup>20</sup>

The federal Lead and Copper Rule, implemented in 1991, established testing requirements for lead in drinking water and identified levels above which actions must be taken to reduce lead levels in water.<sup>21</sup> Subsequent revisions, most recently the Lead and Copper Rule Improvements (LCRI), effective December 30, 2024, impose stricter limits on lead levels and more stringent testing requirements and require water systems to identify and replace all lead service lines within 10 years.<sup>22</sup> Fifteen billion dollars of the IJA is dedicated to supporting LCRI implementation throughout the U.S.<sup>23</sup> Of the \$15 billion, \$57 million is dedicated to Idaho to support service line inventory and replacement projects.<sup>24</sup>

Identifying and locating lead and lead-exposed service lines present a significant challenge, largely due to record keeping over the timespan of lead pipe use and that service lines are located mostly below ground, making it difficult and/or costly to observe visually.<sup>25</sup> The U.S. EPA required drinking water systems to complete a questionnaire on the presence of lead service lines in 2021 as part of the Drinking Water Infrastructure Needs Survey and Assessment (DWINSA).<sup>26</sup> However, this reporting process was found to be unreliable<sup>27</sup> and many systems may not have had the information, technology and/or resources to accurately complete the survey.<sup>28</sup>

The Idaho Department of Environmental Quality (IDEQ) collects data on lead service lines in Idaho.<sup>29</sup> All drinking water systems in Idaho that were required to submit a lead service line inventory under the Lead and Copper Rule had provided information as of April 2025.<sup>30</sup> Twenty-one systems identified lead or galvanized service lines needing replacement, 181 indicated service lines of unknown materials and 817 reported no lead or galvanized service lines needing replacement in their system.<sup>31</sup>

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<sup>1</sup> U.S. Department of Defense, "Per- and Polyfluoroalkyl Substances (PFAS)," n.d., <https://www.acq.osd.mil/eie/eer/ecc/pfas/pfas101/index.html>. U.S. Department of Defense, "Per- and Polyfluoroalkyl Substances (PFAS)."

<sup>2</sup> "State of the Water Industry."

<sup>3</sup> U.S. Department of Defense, "Per- and Polyfluoroalkyl Substances (PFAS)"; U.S. Environmental Protection Agency, "PFAS Explained," October 3, 2024, <https://www.epa.gov/pfas/pfas-explained>. U.S. Department of Defense, "Per- and Polyfluoroalkyl Substances (PFAS)"; U.S. Environmental Protection Agency, "PFAS Explained."

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- <sup>4</sup> U.S. Environmental Protection Agency, "PFAS Explained"; Ramona Darlington, Edwin Barth, and John McKernan, "The Challenges of PFAS Remediation," *The Military Engineer* 110, no. 712 (2018): 58–60. U.S. Environmental Protection Agency, "PFAS Explained"; Darlington, Barth, and McKernan, "The Challenges of PFAS Remediation."
- <sup>5</sup> "PFAS National Primary Drinking Water Regulation."
- <sup>6</sup> "PFAS National Primary Drinking Water Regulation."
- <sup>7</sup> Alison L. Ling, "Estimated Scale of Costs to Remove PFAS from the Environment at Current Emission Rates," *Science of The Total Environment* 918 (March 2024): 170647, <https://doi.org/10.1016/j.scitotenv.2024.170647>; Black & Veatch, "PFAS National Cost Model Report," Technical Memorandum, March 7, 2023.
- <sup>8</sup> Black & Veatch, "PFAS National Cost Model Report."
- <sup>9</sup> Black & Veatch, "PFAS National Cost Model Report."
- <sup>10</sup> "Active Public Water Systems."
- <sup>11</sup> Infrastructure Investment and Jobs Act.
- <sup>12</sup> "Clean Water and Drinking Water State Revolving Fund Loan Lists" (Idaho Department of Environmental Quality, December 2024), Obtained on request.
- <sup>13</sup> "Idaho Drinking Water PFAS Sample Results" (Idaho Department of Environmental Quality, January 17, 2025).
- <sup>14</sup> "Idaho Drinking Water PFAS Sample Results."
- <sup>15</sup> "Idaho Drinking Water PFAS Sample Results."
- <sup>16</sup> "Idaho Drinking Water PFAS Sample Results."
- <sup>17</sup> Kelsey Hensley et al., "Lead Service Line Identification: A Review of Strategies and Approaches," *AWWA Water Science* 3, no. 3 (May 2021): e1226, <https://doi.org/10.1002/aws2.1226>; U.S. Environmental Protection Agency, "Learn about Lead," December 2024, <https://www.epa.gov/lead/learn-about-lead>.
- <sup>18</sup> U.S. Environmental Protection Agency, "Learn about Lead."
- <sup>19</sup> Brandi N. Clark, Sheldon Vaughn Masters, and Marc A. Edwards, "Lead Release to Drinking Water from Galvanized Steel Pipe Coatings," *Environmental Engineering Science* 32, no. 8 (August 2015): 713–21, <https://doi.org/10.1089/ees.2015.0073>; Matthew McFadden et al., "Contributions to Drinking Water Lead from Galvanized Iron Corrosion Scales," *Journal AWWA* 103, no. 4 (April 2011): 76–89, <https://doi.org/10.1002/j.1551-8833.2011.tb11437.x>.
- <sup>20</sup> "Public Law 99-339: Safe Drinking Water Act Amendments of 1986."
- <sup>21</sup> Control of Lead and Copper.
- <sup>22</sup> Control of Lead and Copper.
- <sup>23</sup> Infrastructure Investment and Jobs Act.
- <sup>24</sup> "Drinking Water State Revolving Fund Priority Lists."
- <sup>25</sup> Hensley et al., "Lead Service Line Identification."
- <sup>26</sup> "Drinking Water Infrastructure Needs Survey and Assessment (DWINSAs): 7th Report to Congress."
- <sup>27</sup> Office of the Inspector General, "Inadequate Execution of the 7th DWINSAs Lead Service Line Questionnaire Led to Flawed Data Being Used to Allot Lead Service Line Replacement Funds" (U.S. Environmental Protection Agency, October 21, 2024), <https://www.epaoig.gov/reports/evaluation/inadequate-execution-7th-dwinsa-lead-service-line-questionnaire-led-flawed-data>.
- <sup>28</sup> "Drinking Water Infrastructure Needs Survey and Assessment (DWINSAs): 7th Report to Congress"; Hensley et al., "Lead Service Line Identification."
- <sup>29</sup> Idaho Department of Environmental Quality, "Lead Service Line Data from Idaho's Safe Drinking Water Information System," 2025, Obtained on request.
- <sup>30</sup> "Active Public Water Systems"; Idaho Department of Environmental Quality, "Lead Service Line Data from Idaho's Safe Drinking Water Information System."
- <sup>31</sup> Idaho Department of Environmental Quality, "Lead Service Line Data from Idaho's Safe Drinking Water Information System."