

North Dakota Department of Water Resources

Introduction

In 2021, the North Dakota legislature passed [House Bill 1353](#), which combined the State Water Commission and the Office of State Engineer to create the Department of Water Resources (DWR). DWR focuses on water issues, with top priorities in flood mitigation and water supply management. The mission of DWR is “to responsibly manage North Dakota’s water needs and risks for the people’s benefit.”

The bill also required the governor to appoint a DWR director, subject to approval by a majority of the members of the State Water Commission board. Having an entire state-level department dedicated to water priorities allows North Dakota to allocate substantial resources to reduce risks from flooding.

The challenge

Before DWR, the Office of the State Engineer, created in 1905, and the State Water Commission, created in 1937, jointly oversaw water resources in North Dakota. North Dakota ultimately established DWR to better connect water strategy and policy. Today, the director oversees water development at DWR, which encourages coordination between water policy objectives, engineering possibilities, and financial capacity.

Design of the Department of Water Resources

The director of DWR is a governor-appointed, cabinet-level position that guides the entire department’s staff of [93 people](#).¹ The director is the liaison between DWR and the state legislative and executive branches, as well as between the state and federal government. Because DWR leadership responds directly to the governor, the department has human and financial resources to initiate programs that align with the governor’s priorities. The duties of the DWR director include leading the department as the key decision maker; overseeing the state engineer, DWR divisions, and DWR staff; and serving as the secretary of the State Water Commission.

DWR comprises six divisions, each of which carry out water-related objectives:

1. [Administration](#): Provides operational support to DWR and the State Water Commission.
2. [Atmospheric Resources](#): Conducts weather research, with a focus on the Cloud Modification Program.
3. [Planning and Education](#): Manages public outreach through education, the Water Development Plan, media relations, Tribal outreach, and additional programs.

¹ As of November 2023.

4. [Regulatory](#): Issues construction and drainage permits, while focusing programs to improve dam safety, floodplain management, and risk assessments. This division also collaborates with U.S. Army Corp of Engineers Silver Jackets teams.
5. [Water Appropriation](#): Manages the issuance of water permits and clarifies water rights; manages surface water, subsurface exploration, water resource investigations, and water resource data collection and management.
6. [Water Development](#): Investigates, surveys, and leads construction operations and flood response. This division also manages regional water operations.

DWR created a [Five-Year Strategic Plan](#) for 2022–2027 to prioritize North Dakota’s water goals and deliver on the governor’s initiatives. The strategy includes objectives to manage floodplains and build resilience to flooding. Each objective is accompanied by subgoals, actionable steps, and a methodology.

Cost and funding

Most [state funding](#) for DWR comes from the Resources Trust Fund (RTF). The RTF is funded with 20.5% of revenues from North Dakota’s oil extraction tax. RTF receives additional funding from Southwest Pipeline Project capital repayments, DWR water supply program loan repayments, interest earnings, and oil royalties.

From 2021–2023, DWR’s budget included \$122.5 million for flood projects. During this cycle, the legislature also passed a bond package that provided \$435.5 million for the Fargo-Moorhead Flood Diversion project, bringing the total state commitment for that project to \$850 million.

The 2023–2025 projected budget for the RTF is \$449.8 million. [Senate Bill 2020](#) makes available \$126.2 million of the RTF for flood protection, water conveyance, and general cost-share for water management projects.

Additionally, through the Water Infrastructure Revolving Loan Fund, the Bank of North Dakota [finances](#) water projects with \$165 million; through the Infrastructure Revolving Loan Fund, the Bank finances \$381 million.² Local project sponsors must apply for these loans, providing information about their capacity to pay off loans and details about the project’s economic impact. [Both loans](#) have an interest rate of 2%. Before receiving loans from either fund, applicants must seek approval from the State Water Commission.

Collaboration with all levels of government

Data sharing and technical assistance

DWR provides open, transparent, and free use of its [information and data](#), enabling de-

² As of July 2023.

cision makers and the public to equitably access the best available data for enhancing resilience. DWR also houses statewide Base Level Engineering flood risk data, a FEMA non-regulatory product, to increase public awareness of flooding. Other data includes water levels, projects, reports, maps, and organizations and programs.

Communities and the public can use these tools to find basin-specific data, program information, and organizations in the [Missouri River](#), [Mouse/Souris River](#), [Devils Lake](#), [James River](#), and [Red River](#) basins. Additionally, DWR manages [PRESENS](#) (Pushing Remote Sensors) — a network of remote sensors throughout the state that collects real-time data on water levels, precipitation, and other information. The network of sensors and resulting data make it easier for communities to access information on flood risk.

DWR's Water Development Division offers technical assistance to [water resource districts](#). Each district manages water at the [county, sub-county, or local level](#), with a board of three or more local elected leaders and experts in water management and development.

Cost-Share Program

Through its [Cost-Share Program](#), DWR partners with local sponsors to fund projects for flood control, water supply, irrigation, and other water management projects. The State Water Commission reviews projects for eligibility. The members of the State Water Commission represent eight watersheds, bringing regional knowledge and attending to requests for cost-share financing in all parts of the state.

The State Water Commission assigns cost-share percentages to projects based on project type, with the state responsibility ranging from 40% to 80%. To continue qualifying for the program, an eligible local cost-share sponsor — either a political subdivision, state entity, or officially recognized commission — must provide the necessary local share of funding. As of 2023, [House Bill 1385](#) established that Tribal Nations are also eligible sponsors for cost-share. Local sponsors are critical for providing on-the-ground support to the community.

Interagency and cross-government coordination

DWR coordinates with local, state, and federal agencies for flooding and disaster response. It works with the North Dakota Department of Emergency Services (DES), other state response agencies, and FEMA on joint resilience efforts. In collaboration with DES and Department of Emergency Management partners, DWR also coordinates federal programs, including the National Flood Insurance Program and the U.S. Army Corps of Engineers Silver Jackets Program.

Additionally, DWR coordinates outreach with DES on the State Enhanced Hazard Mitigation Plan, assists in coordinating disaster mitigation funding from DES, and supports FEMA's annual grant opportunities, like the Building Resilient Infrastructure and Communities (BRIC) grant and Flood Mitigation Assistance (FMA) grant.

Impact

In 2023, DWR provided [\\$14 million](#) for 61 different flood protection, water conveyance, and general water projects across the state.

In addition to specific flood projects, DWR bolsters resilience by providing water data to communities through PRESENS and Base Level Engineering. The department's operational funding allowed it to hire [professionals](#) with expertise on water data, who also understand data needs in North Dakota.

In 2023, DWR expanded the role of the PRESENS data collection platform to include the collection of precipitation, soil moisture, and soil temperature. The department deployed 536 PRESENS sites during the 2023 field season and will continue expanding this network in future field seasons. In addition to expanding PRESENS sites, DWR is updating PRESENS sites to include the newest categories of data.

DWR is providing resources to communities for flood control and infrastructure improvements and repairs. Empowered with the financial resources to strengthen flood resilience, department officials are initiating many local projects through the Cost-Share Program. In October 2023, for example, DWR approved a total cost-share of \$324,407 to fund an [agricultural drainage program](#) in Foster County.

Key takeaways

With a reimagined department for water-related development, North Dakota is positioned to develop solutions to flood risks. DWR empowers an accountable leader, carries out water-related projects, and allocates sufficient resources to improve data and other projects.

Empower a leader of statewide and federal resilience priorities

North Dakota's director of DWR is the liaison for water concerns between the state legislative and executive branches, as well as other state agencies, the federal government, international organizations, and local governments. The director informs the state's top decision makers about water needs and priorities. Because the director communicates at multiple levels of government, they can drive flood adaptation priorities.

For states interested in empowering a flood resilience leader, they should consider a governor-appointed department head. This leader can bring information and expertise to the governor, advance statewide resilience objectives, and advocate for resilience priorities on the national level.

Consolidate water objectives under a single leader

DWR's [top water development priorities](#) are improving resilience related to flooding and water supply, both to protect citizen well-being and the economy. DWR works with the State Water Commission and local project sponsors to [fund](#) different projects, using a prioritization matrix when necessary. The department conducts [economic](#)

[analyses](#) for flooding and water supply projects at the same time, expanding its understanding of water project impacts beyond one scope.

States considering integrating water projects can look to North Dakota's holistic model of dedicating one agency to water-related responsibilities. These states may consider including in the department water quality, as well as flood control and water supply.

Employ a sufficient staff with the resources to carry out impactful projects

DWR employs 93 staff members. A staff of this size has allowed DWR to carry out data initiatives, such as PRESENS, that provide critical flood information to communities throughout the state.

While North Dakota has a solid foundation, the department could have a greater impact by employing additional staff members. According to DWR's [5-Year Strategic Plan](#), staff members in the Regulatory Division often prioritize reviewing time-sensitive applications over other key functions. With additions to its staff, DWR could more effectively address longer-term water problems throughout the state.

Successful models for flood resilience can benefit from supplying their resilience entity with adequate human resources, with consistent reviews on the effectiveness of their departments.