

2026 REPORT CARD FOR INDIANA'S INFRASTRUCTURE

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2026 REPORT CARD FOR INDIANA'S INFRASTRUCTURE

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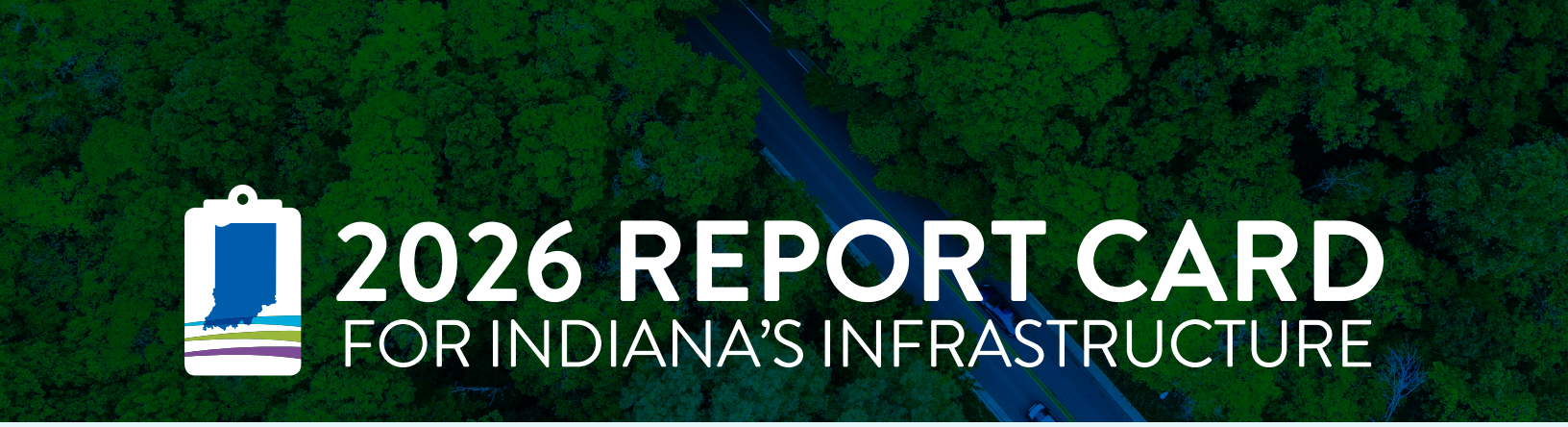
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2026 REPORT CARD FOR INDIANA'S INFRASTRUCTURE

Executive Summary

Indiana's infrastructure system supports the mobility, economic activity, public health, and quality of life of more than seven million residents. Strategic investments over the past decade have strengthened many critical assets, particularly the state's transportation network. Indiana has become a national leader in asset management, using data-driven decision-making to maintain roads and bridges, while recent federal investments through the Infrastructure Investment and Jobs Act (IIJA) have provided additional resources for transportation, water, and energy infrastructure improvements. Despite this progress, aging infrastructure, increasing demand, workforce shortages, and persistent funding gaps continue to place growing pressure on the state's ability to maintain and improve critical systems.

Indiana's transportation infrastructure remains one of the state's greatest strengths. More than 95% of Indiana's bridges are in fair or good condition, and the percentage of load-posted bridges has continued to decline due to proactive preservation efforts and long-term investment strategies. The state's roadway system, which includes more than 105,000 miles of public roads, benefits from advanced asset management practices and funding reforms implemented through the Next Level Roads program. However, local agencies continue to face persistent challenges, particularly in maintaining aging bridges and pavements with limited funding resources. Deferred maintenance costs Indiana motorists an estimated $1.6 billion annually through vehicle repairs, increased fuel consumption, and accelerated vehicle depreciation.

Water infrastructure presents some of Indiana's most pressing long-term challenges. Public water systems require more than $8 billion in improvements to address aging distribution systems, lead service line replacement, PFAS treatment requirements, and growing system demands. Wastewater systems face similar pressures, with documented needs exceeding $10 billion for treatment plant upgrades, sewer rehabilitation, and combined sewer overflow mitigation. Meanwhile, stormwater infrastructure is increasingly strained by urban development and more frequent extreme rainfall events. Recent flooding disasters have highlighted vulnerabilities in aging drainage systems and underscored the need for more resilient infrastructure planning across the state.

Indiana's energy and dam infrastructure face additional pressures from changing operating conditions and increasing risk. Rapid growth in data centers and electrification is expected to drive substantial growth in electricity demand, while aging generation assets, transmission systems, and severe weather events create reliability concerns. At the same time, Indiana's aging dam inventory, much of which is privately owned, faces substantial rehabilitation needs with limited funding available for repairs and upgrades. Many of these assets were built decades ago and were not designed to current standards or future climate conditions.

Recent investments have improved infrastructure performance across many sectors, but long-term success will depend on sustained funding, continued innovation, workforce development, and resilience-focused planning. Addressing these challenges will allow Indiana to preserve existing assets, strengthen public safety, support economic growth, and maintain its position as the Crossroads of America for decades to come.

Recommendations to Raise the Grade

1

Increase Dedicated Funding for Local Roads and Bridges

While state-owned transportation assets are generally performing well, locally owned roads and bridges face significant funding shortfalls that contribute to deferred maintenance and deterioration. Expanding programs such as Community Crossings, increasing local revenue options, and establishing long-term transportation funding mechanisms would help local agencies address backlogs before assets require costly reconstruction. A stronger focus on preservation rather than replacement would materially improve overall system condition.

2

Accelerate Water and Wastewater System Modernization

Indiana faces billions of dollars in drinking water and wastewater infrastructure needs related to aging facilities, lead service line replacement, PFAS treatment requirements, sewer rehabilitation, and treatment plant upgrades. Expanding State Revolving Fund programs, pursuing federal grants, and encouraging regional utility partnerships would help utilities address aging infrastructure while maintaining affordability for ratepayers.

3

Invest in Resilient Stormwater and Flood Management Infrastructure

Increasingly intense rainfall events are overwhelming aging drainage systems and increasing flood risks across the state. Expanding stormwater utility programs, implementing green infrastructure, upgrading culverts and drainage systems, and incorporating climate resilience into future project design would reduce flood damage, while improving community resilience.

4

Strengthen Energy Reliability and Grid Capacity

Projected growth from data centers, industrial development, and electrification will place greater demands on Indiana's electrical system. Strategic investments in transmission infrastructure, grid modernization, energy storage, and diversified power generation sources would improve reliability and resilience while supporting economic growth and future energy demands.

5

Improve Sustainability of Aging Dams and Critical Assets

Many of Indiana's dams and other critical infrastructure assets are reaching the end of their service lives. Expanding dam rehabilitation grant programs, increasing inspection resources, prioritizing high-hazard structures, and establishing dedicated asset management programs for aging infrastructure would reduce safety risks and prevent costly emergency repairs.

6

Apply Innovative Multi-Criteria Decision Analysis to Asset Management

Agencies that manage assets across sectors must prioritize and synergize improvements to maximize benefits for the taxpayer and community. The state should look at the system as a whole by merging asset management plans and priorities and applying Multi-Criteria Decision Analysis to determine the best utilization of limited available resources.

About The Report Card for America's Infrastructure

Every four years, America's civil engineers provide a comprehensive assessment of the nation's 18 major infrastructure categories in ASCE's *Report Card for America's Infrastructure.* Using a simple A to F school report card format, the Report Card examines current infrastructure conditions and needs, assigning grades and making recommendations to raise them.

The ASCE Committee on America's Infrastructure is made up of 52 dedicated civil engineers and infrastructure professionals from across the country, with decades of expertise in all categories, who volunteer their time to work with ASCE Infrastructure Initiatives staff to prepare the Report Card. The Committee assesses all relevant data and reports, consults with technical and industry experts, and assigns grades using the following criteria:

Methodology

CAPACITY
Does the infrastructure's capacity meet current and future demands?

CONDITION
What is the infrastructure's existing and near-future physical condition?

FUNDING
What is the current level of funding from all levels of government for the infrastructure category as compared to the estimated funding need?

FUTURE NEED
What is the cost to improve the infrastructure? Will future funding prospects address the need?

OPERATION AND MAINTENANCE
What is the owners' ability to operate and maintain the infrastructure properly? Is the infrastructure in compliance with government regulations?

PUBLIC SAFETY
To what extent is the public's safety jeopardized by the condition of the infrastructure and what could be the consequences of failure?

RESILIENCE
What is the infrastructure system's capability to prevent or protect against significant multi-hazard threats and incidents? How able is it to quickly recover and reconstitute critical services with minimum consequences to public safety and health, the economy, and national security?

INNOVATION
What new and innovative techniques, materials, technologies, and delivery methods are being implemented to improve the infrastructure?

In addition to this national Report Card, ASCE's sections and branches prepare state reports on a rolling basis. Visit **InfrastructureReportCard.org** to learn about your state's infrastructure.

About the Grades

The 2026 Report Card for Arizona's Infrastructure was written by a committee of more than 50 civil engineers across Arizona who volunteered their time to collect and analyze data, prepare and review their findings and present their conclusions. The committee worked with staff from ASCE National and ASCE's Committee on America's Infrastructure to provide a snapshot of our state's infrastructure, as it relates to us locally and on a national level. The Report Card Sections are graded based on the following eight criteria: capacity, condition, funding, future need, operation and maintenance, public safety, resilience and innovation. ASCE defines these grades as follows:



Exceptional, Fit for the Future



Good, Adequate for Now



Mediocre, Requires Attention



Poor, At Risk



Failing/Critical, Unfit for Purpose

The 2026 Report Card on Indiana's Infrastructure



Bridges
B-



Dams
D



Drinking Water
C-



Energy
D



Roads
C-



OVERALL GPA



Stormwater
D



Wastewater
D+

Bridges



B-

GRADE COMPARISON

IN: B-

Nat'l: C

Photo: The Big Four Bridge over the Ohio River, Jeffersonville, Indiana; Jon Bilous

BRIDGES

EXECUTIVE SUMMARY

Indiana's bridge network includes more than 19,500 bridges owned by state, local, and federal agencies that support mobility, commerce, and emergency response throughout the state. Overall bridge conditions are strong, with 95% of bridges rated fair or good and state-owned bridges outperforming national averages. Indiana's success reflects a disciplined asset management program, preservation-first investment strategies, and the use of innovative materials and project delivery methods. However, significant challenges remain for locally owned bridges. While recent federal investments have strengthened near-term funding, local bridge needs are estimated at approximately $580 million annually, far exceeding available revenues. As a result, many local agencies remain reliant on competitive grant programs to address aging infrastructure. Without additional recurring funding, Indiana risks increasing bridge closures, load restrictions, deferred maintenance, and substantially higher future rehabilitation and replacement costs.

CONDITION AND CAPACITY

According to the National Bridge Inventory (NBI), Indiana has 6,124 state-owned bridges and 13,418 bridges owned by counties, cities, towns, or other local jurisdictions. The average bridge age in Indiana is 48 years, similar to the national average age of 49 years.

Well maintained bridges provide safe and reliable access for travel to work, home, medical facilities, schools, business access and recreation. On average, bridges in the state range from fair to good condition, with less than 5% in poor condition. In the context of this report, "poor" refers to bridges with advanced deterioration that require significant maintenance rehabilitation, or replacement, though they are not necessarily unsafe. Between 2021 and 2025, the overall bridge condition ratings have mostly held steady with limited percentage change when comparing bridge condition ratings by count or by bridge deck area. The percentage of state-owned bridges in fair condition or better has remained at 98% or more between 2021 and 2025, with the percentage in good condition increasing from 49% to 54% in that time period. For bridges owned by other agencies, the percentage of bridges in fair condition or better has remained at 93% with the percentage in good condition staying consistent at 37%.

The trend of increasing the percentage of state-owned bridges in "good" condition suggests that the Indiana Department of Transportation (INDOT) has focused on maintaining their structures and addressing safety concerns. Between 2021 and 2025, 205 bridges were added to the system, while an additional 347 bridges had

their conditions improved to meet "good" criteria. For bridges owned by other agencies, the overall condition distribution has remained largely unchanged despite ongoing investment efforts. While Indiana's state-owned bridges are outperforming the national average of 6.8% of bridges rated in poor condition, non-state-owned bridges are faring slightly worse than the national average at 7% rated "poor" condition.

When a bridge's condition requires limits on vehicle weight and size the bridge will be posted, forbidding vehicles of certain weight and size from crossing and thereby impeding the flow of goods and commerce and potentially impacting emergency services. Overall, the percentage of bridges that have posted load ratings in Indiana has reduced from 11% to 9% between 2021 and 2025.

Table 1: Bridge Condition in Indiana - Counts

Year	Good	%Good	Fair	%Fair	Poor	%Poor	Total
2025	8,213	42%	10,286	53%	1,043	5%	19,542
2024	8,224	42%	10,253	53%	1,018	5%	19,495
2023	8,031	41%	10,332	53%	1,018	5%	19,381
2022	7,916	41%	10,411	54%	1,040	5%	19,367
2021	7,866	41%	10,389	54%	1,082	6%	19,337

Source: 2025 Federal Highway Administration National Bridge Inventory

Table 2: Bridge Condition in Indiana – Bridge Area

Year	Good	%Good	Fair	%Fair	Poor	%Poor	Total
2025	4,041,252	48%	4,092,237	48%	321,474	4%	8,454,963
2024	4,049,096	48%	4,119,771	49%	266,529	3%	8,435,396
2023	3,933,432	47%	4,191,348	50%	271,187	3%	8,395,967
2022	3,838,672	46%	4,257,707	51%	284,998	3%	8,381,378
2021	3,780,629	45%	4,286,858	51%	279,449	3%	8,346,936

Source: 2025 Federal Highway Administration National Bridge Inventory

Table 3: Bridge Condition in Indiana – State Owned Counts

Year	Good	%Good	Fair	%Fair	Poor	%Poor	Total
2025	3,135	54%	2,578	45%	79	1%	5,792
2024	3,084	53%	2,596	45%	91	2%	5,771
2023	2,940	51%	2,682	47%	116	2%	5,738
2022	2,829	49%	2,772	48%	126	2%	5,727
2021	2,781	49%	2,821	49%	129	2%	5,731

Source: 2025 Federal Highway Administration National Bridge Inventory

Table 4: Bridge Condition in Indiana – Other Agency Counts

Year	Good	%Good	Fair	%Fair	Poor	%Poor	Total
2025	5,078	37%	7,708	56%	964	7%	13,750
2024	5,140	37%	7,657	56%	927	7%	13,724
2023	5,091	37%	7,650	56%	902	7%	13,643
2022	5,087	37%	7,639	56%	914	7%	13,640
2021	5,085	37%	7,568	56%	953	7%	13,606

Source: 2025 Federal Highway Administration National Bridge Inventory

FUNDING AND FUTURE NEED

Indiana's bridge funding framework relies on a combination of federal formula and discretionary programs, state transportation revenues, and local funding mechanisms, with responsibilities divided among INDOT, counties, and municipalities. While recent federal investments have strengthened near-term funding levels, the system remains heavily dependent on competitive grants and local matching capacity.

Federal funding

Federal funding is the largest single source of bridge investment in Indiana. Through the Infrastructure Investment and Jobs Act (IIJA), Indiana has been allocated approximately $401 million in Bridge Formula Program funding between FY 2022-2026, the life of the legislation. As of 2025, approximately $273.2 million has been obligated to 369 bridge projects statewide, supporting both state-owned and locally owned bridges.

In addition to bridge-specific IIJA funding, Indiana relies on highway programs that received additional funding from the IIJA including the federal Highway Performance Program (NHPP) and Surface Transportation Block Grant Program (STBG).

State Funding

Indiana does not maintain a dedicated municipal bridge aid program. State support for bridge preservation is provided primarily through broader transportation programs. The Community Crossings Matching Grant (CCMG) Program, funded through Indiana's Local Road and Bridge Matching Grant Fund, provides $100 million

annually to local agencies for eligible road and bridge projects. In 2026, Senate Bill (SB) 179 was enacted to provide an additional $75 million in matching grant funding and accelerate certain local transportation fund distributions, increasing funding available for local infrastructure improvements. The legislation was signed into law by Governor Mike Braun on March 12, 2026.

INDOT historically directs approximately 25% of its federal highway funding toward local transportation projects through the Local Public Agency (LPA) Program, with local agencies typically required to provide a 20% local match. The local match can be a significant financial requirement which can limit participation for smaller jurisdictions. Through INDOT's LPA Program, approximately $180 million in federal transportation funding was awarded to Indiana local governments in 2026 for road, bridge, safety, and pedestrian infrastructure improvements, including approximately $129 million for local bridge rehabilitation and replacement projects.

Indiana relies heavily on user-based revenues, including gasoline and diesel fuel taxes indexed to inflation, vehicle registration fees and surcharges, and motor carrier fees. Indiana's 2026 state gasoline taxes and fees were among the highest in the nation. Based on July 2026 rates, Indiana levied approximately 63.1 cents per gallon in state gasoline taxes and fees, nearly twice the national state average of approximately 33.8 cents per gallon and ranking third highest among states. These amounts are exclusive of the federal gasoline tax of 18.4 cents per gallon. However, Indiana temporarily suspended its gasoline use and excise taxes beginning in spring 2026 in response to high fuel prices; the suspension did not apply to diesel fuel. The temporary suspension demonstrates how transportation funding can be affected by policy and economic conditions, reinforcing the importance of identifying reliable, long-term funding mechanisms to address ongoing infrastructure needs. Indiana does not currently use tolling to fund infrastructure projects but is exploring the option through the legislative process.

Local Funding

Currently, local bridge funding in Indiana is generated through:

- Local Option Income Taxes (LOIT);
- Wheel taxes and excise surtaxes;
- Cumulative bridge funds;
- General fund appropriations;
- Federal grant funds as administered through the LPA program or directly from FHWA; and
- State grant funds as administered through the CCMG program.

Unfortunately, the most significant threat to Indiana's long-term bridge performance is not current condition, but the lack of sustainable funding. Despite recent funding increases, existing funding levels remain insufficient to meet Indiana's long-term bridge needs, particularly for county and municipally owned bridges. Asset management and financial analyses consistently identify a significant gap between available revenues and required investment.

Analysis by Purdue University's Local Technical Assistance Program (LTAP) estimates that Indiana's local bridge network requires an annual investment of approximately $580 million for each of the next ten years for currently identified bridge replacement and rehabilitation needs. This includes 3,109 local bridges requiring replacement and 598 bridges requiring rehabilitation to prevent further deterioration.

These estimates reflect existing deficiencies and do not account for future aging, inflation, or increased design standards. Counties generate approximately $67 million in cumulative bridge funds annually, leaving a $513 million annual shortfall that must come from other sources. This deficit represents a persistent and structural local funding gap that is heavily reliant on grant funding to maintain current conditions.

While IIJA funding provides important near-term relief, without additional recurring state or local revenue

sources, bridges currently rated in "fair" condition are expected to deteriorate into "poor" condition, significantly increasing future rehabilitation and replacement costs.

At the state level, INDOT's near-term funding outlook is relatively stable due to indexed fuel taxes and federal funding commitments, allowing continued progress in maintaining state-owned bridges.

At the local level, the outlook is more constrained. Many counties and municipalities struggle to meet required local match thresholds. Additionally, smaller jurisdictions are disproportionately impacted by the failure of a single major bridge. On top of this, construction cost inflation continues to erode purchasing power, which is particularly challenging for local jurisdictions with limited resources.

Indiana has made progress reversing historical underinvestment; however, current funding trends largely sustain existing conditions rather than improve them. Without expanded or dedicated local bridge funding mechanisms, long-term risks include:

- A growing number of bridges reaching end-of-service life simultaneously,
- Increased load postings and emergency repairs,
- Escalating lifecycle costs due to deferred maintenance.

These findings align with ASCE's national analysis, which estimates a $373 billion nationwide bridge investment gap over the next decade, reinforcing the systemic nature of Indiana's funding challenge.

OPERATION AND MAINTENANCE

INDOT's Bridge Management Division is responsible for bridge inspection, asset management, and preservation of state-owned bridges. Counties and municipalities are responsible for maintenance, construction, and inspection of certain bridges within their jurisdiction, particularly those not on the state highway system.

Under the division, the Bridge Inspection Office is responsible for providing requirements, specifications, procedures, and oversight of inspection operations. The office ensures that all bridges within Indiana's boundaries are inventoried, inspected, and evaluated in accordance with the National Bridge Inspection Standards (NBIS) and the Specifications for the National Bridge Inventory (NBI).

INDOT prioritizes investment in preserving and maintaining Indiana's roads, bridges, and infrastructure. INDOT bridge preservation activities are aimed at preventing, delaying, and mitigating deterioration. Furthermore, most INDOT bridges require significant rehabilitation or preservation investments approximately every 15 to 20 years to extend their service life and maintain safe operation.

The division's Bridge Asset Management Office is responsible for routine condition evaluations, recommendations for cost-effective projects to improve the bridge network, and analysis of bridge data using Bridge Management System (BMS) software tools. INDOT applies bridge lifecycle strategies using a 20-year analysis period. The BMS provides recommended treatment strategies that help INDOT achieve its performance goal of maintaining fewer than 3% of bridges in poor condition.

Effective bridge management depends not only on funding but also on maintaining a skilled workforce. Indiana faces ongoing challenges recruiting and retaining the engineers, inspectors, and maintenance personnel needed to manage its inventory. The number of civil engineering graduates in Indiana has been trending downward while workforce needs have increased, and Indiana ranks 41st nationally in retaining college graduates. Additionally, the rate of high school graduates enrolling in college has dropped to only 51% in 2023, below the national average of 64% and representing the steepest drop of any state tracked by the National Center for Education Statistics over the last 15 years.

PUBLIC SAFETY

Each bridge is the state is evaluated for its safe structural capacity, called a load rating, based on design and current condition. As a bridge ages and deteriorates, it may lose structural capacity. If a load rating does not meet legal load requirements, the bridge is repaired, posted for a lesser truck weight or closed to keep the public safe.

In 2025, Indiana had 1,804 total posted or closed bridges. The number of load-posted bridges has decreased each year, from 1,906 in 2021 to 1,696 in 2025. During the same period, the number of closed bridges increased from 65 to 108. While the number of posted bridges is improving, the increase in bridge closures reflects the challenges associated with managing aging bridge inventory while maintaining public safety.

Funding has been allocated for maintenance to address this deterioration, however if the number of posted and closed bridges continue to rise it will limit the flow of goods and commerce, impact daily commutes, and reduce transportation network connectivity throughout Indiana. Load-posted bridges can also restrict heavier emergency vehicles while bridge closures may require emergency responders to travel longer alternate routes, potentially increasing response times when every minute matters.

RESILIENCY

Resilient bridge infrastructure is designed to anticipate, withstand, and recover from various disruptions ensuring continuity of essential services and minimizing vulnerability to risks. Although resilience is not currently evaluated through a dedicated statewide bridge resilience program, INDOT incorporates resilience considerations into hydraulic design, scour evaluations, seismic design requirements, and asset management practices.

Flooding and scour are the most common risks for the bridges in Indiana. Seasonal precipitation is expected to increase by up to 20% over 2020 averages by the year 2050. Indiana has implemented a requirement that all bridges identified as scour critical must have a Scour Plan of Action (POA) created. The Scour POA shall be approved by the Bridge Inspection Area Engineer and maintained in the BIAS bridge file for future inspections. It is updated by the certified bridge inspection team leader following each recurring inspection. Bridge owners are encouraged to mitigate scour risk by installing properly designed countermeasures at bridges using FHWA Hydraulic Engineering guidance. Installation of properly designed scour countermeasures allows the bridge to be coded to reflect that the bridge is no longer scour critical and does not require a Scour POA.

The potential for damaging earthquakes in Indiana exists from the New Madrid Seismic Zone and the Wabash Valley Seismic Zone. In 2018, the Joint Transportation Research Program (JTRP) started a multi-year effort to assess the seismic vulnerability of the state's bridge network. They developed an automated tool, INSAT, to assess bridge vulnerability, focusing on the southwest portion of the state. About 4% of the bridges they examined were ranked high priority for seismic retrofitting. The Indiana Design Manual requires that bridge foundations are designed in accordance with AASHTO Guide Specifications for Load and Resistance Factor Design (LRFD) Seismic Bridge Design.

INDOT prioritizes efforts to identify and replace or rehabilitate fracture critical members. A fracture critical member is defined a structural metal component in tension whose failure would render the bridge dysfunctional or cause bridge collapse.

Continuous evaluation of bridge assets along with resilient-focused design guidance will ultimately prolong the life of Indiana's bridges.

INNOVATION

The use of innovative materials such as ultra-high-performance concrete (UHPC) and high-strength reinforcing is increasingly common on bridge projects across the state. INDOT first used UHPC in 2021 to construct a superstructure replacement in Rush County. Traditional concrete can reach a strength of 10,000 pounds per square inch (psi) which the UHPC material can reach over 14,000 psi in four days and over 21,000 psi in 28 days. The rapid development of high strengths allows quicker construction, reducing impacts to the traveling public.

From a project delivery standpoint, the INDOT Major Project Delivery Division is tasked with managing and executing complex projects to get the best value for Indiana taxpayers while staying within budget and on schedule. They implement three alternative delivery methods including Design-Build (DB), Progressive Design-Build (PDB), and Construction Manager General Contractor (CMGC). INDOT has been using the Design-Build model since the 1990s. In July 2023, the authority to add CMGC and PDB delivery methods for 2 projects per year was passed for a five-year pilot program. These alternative delivery methods use early general contractor involvement to enhance risk mitigation, accelerate delivery, increase industry collaboration, incentivize innovative design, and provide greater cost certainty.

INDOT has implemented a 10-year strategic plan for Digital Delivery, which refers to a model-based project delivery method that replaces traditional 2D paper plans with 3D-engineered models and data. Geometry, asset attributes, and documentation will be integrated into digital models for contractors, designers, and inspectors to work with. The benefits include enhanced design quality and visualization, increased collaboration and communication, reduced changes during construction, enhanced asset management throughout the lifecycle, and better support for decision-making through available data. The plan consists of five phases with Phase 1 beginning in 2025.

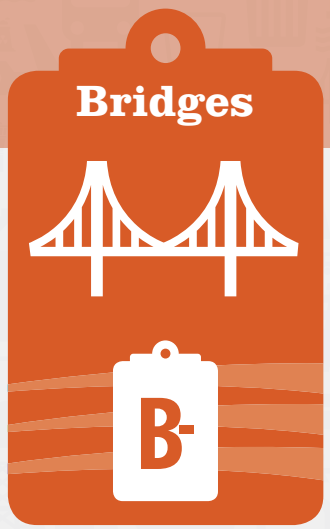


Photo: Elkhart, Indiana: Wirestock Creators



RECOMMENDATIONS TO RAISE THE GRADE

- Establish a dedicated, recurring funding source for local bridges to close the long standing gap between available revenues and documented county and municipal bridge needs, reducing reliance on competitive grants and temporary federal programs.
- Strengthen preservation-first investment strategies by prioritizing bridges in fair condition for timely rehabilitation, preventing costlier replacements and limiting the growth of bridges rated in poor condition.
- Expand and stabilize state support programs for local agencies, including increased funding levels and flexible local match requirements, to ensure smaller jurisdictions can address critical bridge needs.
- Accelerate adoption of resilient design standards and materials to reduce lifecycle costs, shorten construction impacts, and improve long-term bridge performance.
- Formalize and publish multivariable bridge prioritization frameworks that incorporate condition, load posting, freight importance, emergency access, and lifecycle cost to guide investment decisions.



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Photo: Big Raccoon Creek in Parke County, Indiana; Gestalt Imagery

DAMS

EXECUTIVE SUMMARY

Indiana has 1,641 dams, most of which support recreation, and 66% are privately owned. The Indiana Department of Natural Resources (IDNR) Dam Safety Program regulates dam construction, operation, and maintenance to protect lives and property, but responsibility for upkeep rests with dam owners under state law. Indiana does not have a state loan or grant program to fund dam rehabilitation. More than half of high-hazard dams are privately IDNR employs eight full-time staff dedicated to dam safety, managing about 28 high-hazard dams per staff member, close to the national average. Its budget averages $720 per regulated dam, slightly below the U.S. average. The agency provides an online inundation mapping tool and tracks dams as its highest-risk assets. Investments in removing aging low-head dams have improved ecosystems and recreation, while hydropower remains minimal.

Limited knowledge and funding for privately owned dams pose significant risks, especially if failures occur before issues are addressed.

BACKGROUND

The Indiana Department of Natural Resources (IDNR) Dam Safety Program (DSP) regulates the construction, operation and maintenance of Indiana's dams to protect life and property from damage due to failure of dams through permitting and inspection of dams. In Indiana, dams are categorized and regulated based on how much damage and loss of life occur if they fail. IDNR assigns the classification, which can change when downstream conditions change. They are:

High Hazard – failure may cause loss of life and serious damage to building and/or infrastructure. There are 278 high hazard dams (20%), of which 19 are state owned.

Significant Hazard – failure may damage isolated homes and highways or cause interruption of public utility services. There are 321 significant hazard dams (23%).

Low Hazard – failure may cause to farm buildings, agricultural lands or local roads. There are 789 low hazard dams (57%).

There are three types of dams in Indiana: Earthfill embankment dams, rockfills dams and concrete dams. Earth embankment dams are the most prevalent and of the three are most prone to damage by extreme rainfall events and seepage.

Since 2022, a dam falls under IDNR's jurisdiction if it meets any two of the following criteria:

1. Drainage area greater than one square mile.
2. Embankment Height exceeds 20 feet.
3. Impounds more than 100 acre-feet or water.
4. High-hazard classification through petition of downstream property owners.

Figure 1: Typical Embankment Dam

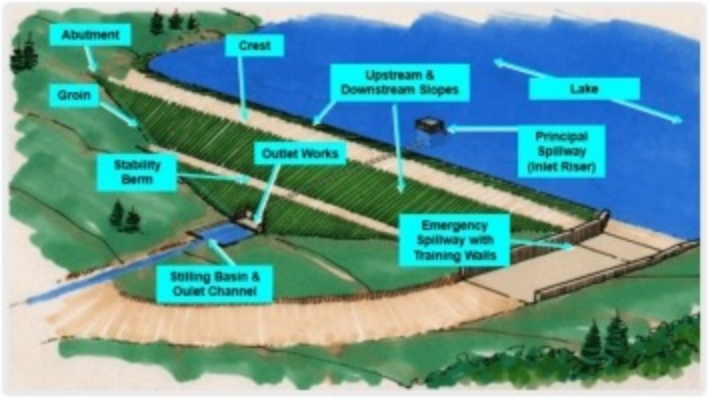


Image courtesy of Natural Resources Conservation Service, USDA.

Prior to 2022, only one criteria was required to place a dam under IDNR jurisdiction. Since then, a change in state law removed 882 dams from IDNR's regulatory authority. Most dams in Indiana are earth embankment dams with a height less than 50 feet, and are typically used for recreation, flood control, and water supply.

CONDITION AND CAPACITY

The Indiana Department of Natural Resources (IDNR) Dam Safety Program (DSP) regulates the construction, operation and maintenance of Indiana's dams to protect life and property from damage due to failure of dams through permitting and inspection of dams. In Indiana, dams are categorized and regulated based on how much damage and loss of life occur if they fail. IDNR assigns the classification, which can change when downstream conditions change. They are:

- High Hazard – failure may cause loss of life and serious damage to building and/or infrastructure. There are 278 high hazard dams (20%), of which 19 are state owned.
- Significant Hazard – failure may damage isolated homes and highways or cause interruption of public utility services. There are 321 significant hazard dams (23%).
- Low Hazard – failure may cause to farm buildings, agricultural lands or local roads. There are 789 low hazard dams (57%).

Table 1: Indiana Dams in the NID

IN Dams in the NID	
Total NID Dams	1,092
NID High-Hazard Potential Dams	281
Total State Regulated Dams	819
State Regulated High-Hazard Potential Dams	242

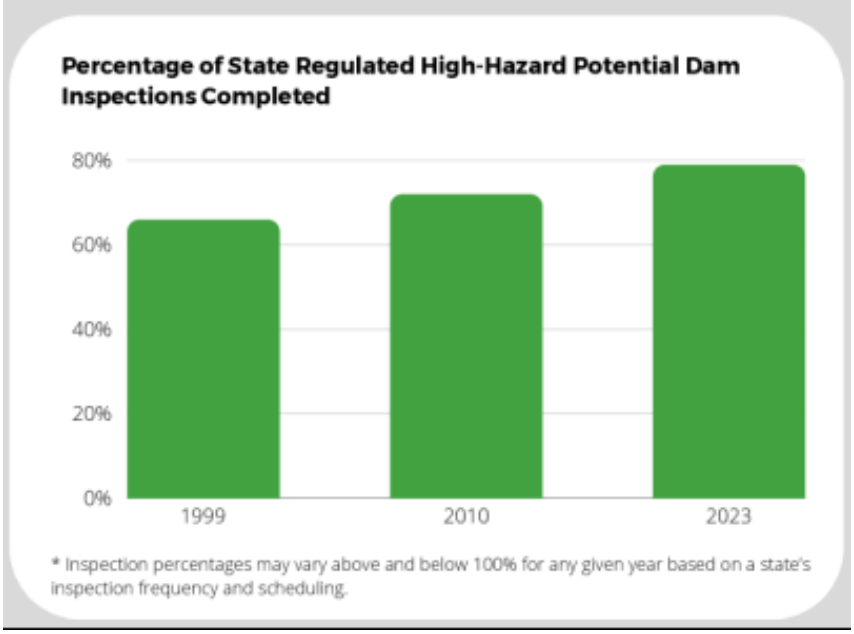
Source: NID

There are currently 1,641 dams in the IDNR regulatory database, including 91 low head dams. (defined in Indiana as any damn with less than 25 feet impoundment). However, not all dams in the inventory are currently regulated. Additionally, the National Inventory of Dams (NID) database lists 1,091 dams in Indiana and another 148 are listed in the Low Head Dam Inventory (LHDI). The NID classifies dams into three categories based on

their hazard potential: high, significant, and low. The NID classification criteria is similar to IDNR's.

Indiana has 281 high-hazard dams, which are defined as dams whose failure could lead to loss of life and significant economic damage. Per the NID database, just under 80% of high-hazard had completed inspections. The Data shows that 44% of Indiana's high-hazard dams are considered potentially dangerous due to various factors, including being in poor condition, not being rated, or having their ratings withheld. Only 55% of these high hazard dams have an Emergency Action Plan (EAP), well below the national average of 83%. Key examples of high-hazard dams in the state include the Eagle Creek Reservoir Dam, which is in FAIR condition, and the Upper Peoga Lake Dam, which is in a high-risk category with known safety concerns that require urgent review and repair.

Table 2: Inspections Completed



Source: ASDSO

ASDSO's Dam Incident Database provides basic information on dam safety incidents to ASDSO members, dam safety stakeholders, the media and the public. The database lists 21 dams in Indiana that have reported safety incidents since 2008. (Note: The database does not not encompass the total number of dam safety incidents nationwide, but reflects only the data that ASDSO has been able to collect). The database cites nine dam failures and 12 non-failures as shown in Table 3.

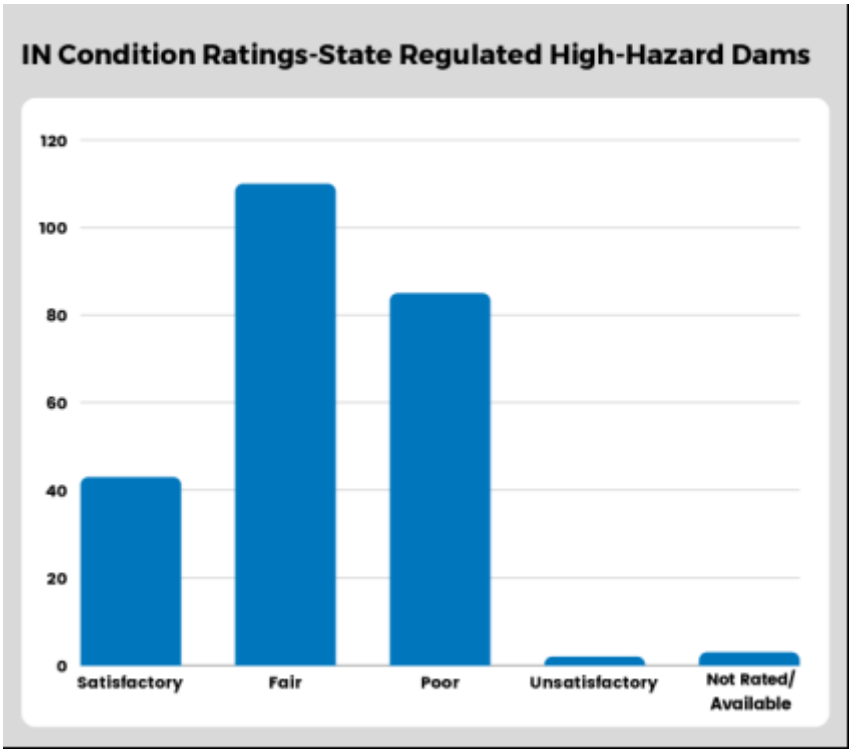
Table 3. Indiana Dam Incidents

Incident Driver	Number
Deterioration or Poor Condition	4
Overtopping	7
Spillway issue	2
Structural stability	3
Seepage	2
Other	3

Source: ASDSO

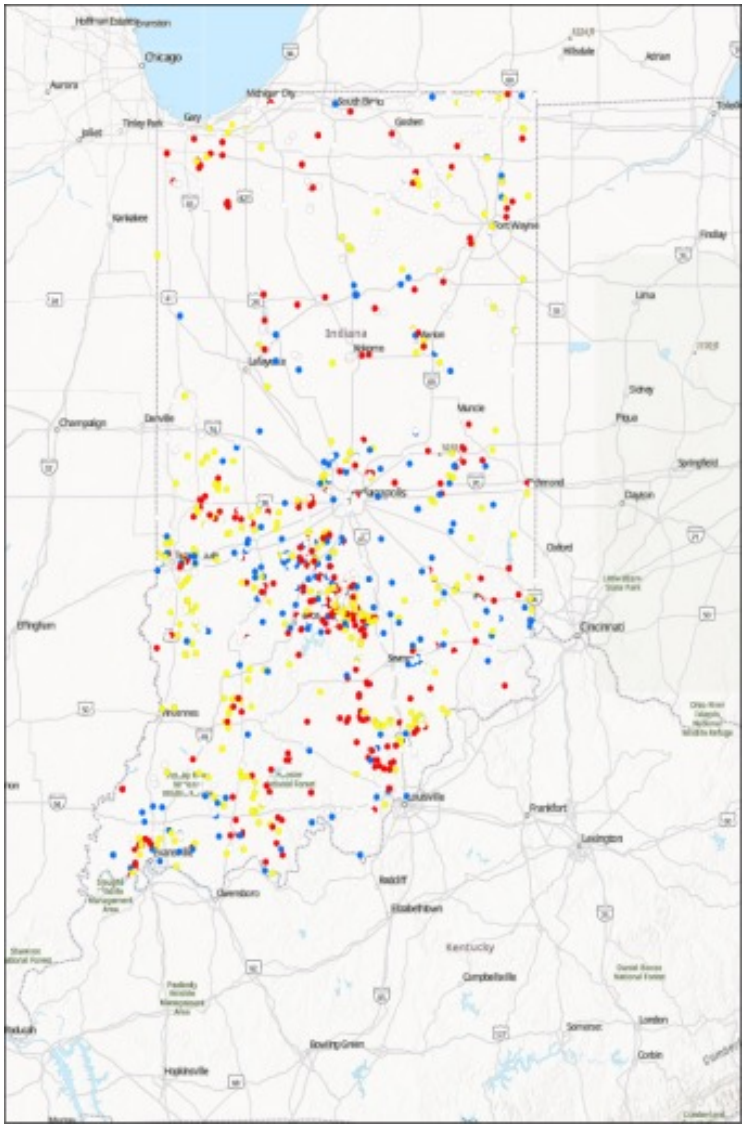
Historically, in terms of risk probability, IDNR owned dams have breached on several occasions, with an approximate failure rate of 5%.

Table 4: Dam Condition Ratings



Source: ASDSO

Figure 2: Dams by HAZARD Potential



Source: IDNR

Figure 2 shows the locations of dams by hazard potential.

According to the NID, the primary function of dams in Indiana is to support recreation, followed by flood control, fish and wildlife purposes, and water supply needs. Other purposes include debris control, fire protection, stock, small fishponds, irrigation, tailings, navigation, and hydroelectric. Only 1% of Indiana dams are used for hydropower. Many of the dams that serve non-recreational functions also indirectly facilitate recreational activities as well. The average age of dams in Indiana is 64 years, in line with the national average of 64 years. Most embankment dams are built to a 50-year lifespan, and older dams were not built to current standards. Furthermore, at the time of their construction, these dams may have been considered low hazard potential. Today, many of these structures now protect businesses and residents located downstream. As constructed, they may not be able to withstand the increasingly frequent and severe weather events we see today or meet newer standards that improve resilience and reduce risk.

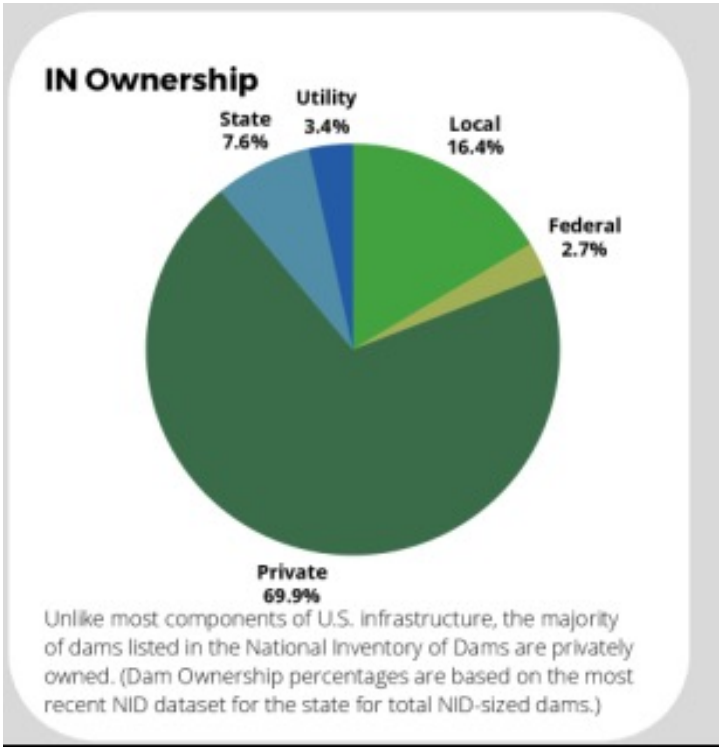
OPERATION & MAINTENANCE

All dams are required to be operated and maintained in a safe manner. State code requires the owner maintain and keep the dam in an adequate state of repair. Unfortunately, the weakness of the statutes provides too much flexibility leaving much to interpretation. Knowing the risk that dams pose can save lives and property. Dams most often fail during extreme rainfall events due to unrecognized or unaddressed design or maintenance deficiencies. IDNR has developed flood inundation maps as a tool to understand and protect the areas impacted by dam failure. These maps support emergency preparedness and response activities.

The Association of State Dam Safety Officials (ASDSO) also offers tools for preparedness which can help answer questions about dams and their risks.

According to Indiana Code, the construction, operation, maintenance, repair, inspection, and removal of dams are the responsibility of the dam owner. The IDNR dam safety program requires dam owners or prospective owners to obtain a permit for the construction/ modification or operation and maintenance of dams. Only engineers who are registered as professional engineers (PE) in the State of Indiana, with expertise in the investigation, design, construction, and operation of dams, can prepare the engineering data to be submitted with an application for a permit. The number of licensed professional engineers in the state has remained steady for the last five years at about 13,000. Looking ahead, there is a continuing and future need to support the training for licensure of professional engineers and engineering geologists in the state with an emphasis in hydraulics.

Table 5: Dam Ownership



Source: ASDSO

Private owners and local government municipalities are responsible for the operation and maintenance of most dams, including high hazard dams. Most dams in Indiana are privately owned and many dams in Indiana do not have a clear owner, as there is no requirement for owning a dam and they get bought and sold with no notification or assessment of financial ability. This suggests a need not only for state regulation of dams, but careful consideration and prioritization of dams by local governments, so that the responsibilities of dam ownership are clear. Of note, the largest high hazard dams in the state based on storage and surface area are owned by the federal government and include Brookeville Lake Dam, Mississinewa Lake Dam, Salamonie Lake Dam, Cecil M Harden Dam and Patoka Lake Dam, among others.

Indiana has just over eight full-time equivalent (FTE) employees dedicated to dam safety. The national average of state regulated dams per FTE was about 165 dams; for Indiana there are just under 100 dams per FTE. The national average of state regulated high hazard potential dams per FTE is 29; whereas for Indiana there are about 28 high hazard potential dams per FTE. Indiana does not currently have a state loan or grant funding program to assist dam owners with repair and rehabilitation of dams. This could have an impact on the state's ability to obtain grant funds through dam safety programs such as the U.S. Army Corps of Engineers' High Hazard Potential Dam Rehabilitation Grant Program and the National Dam Safety Program, both of which are currently subject to cost sharing or limitations and state funding conditionality. The total annual funding, nationally, for these two programs is $60 million and $13.9 million.

FUNDING & FUTURE NEED

Indiana does not currently have a state loan or grant funding program to assist dam owners with repair and rehabilitation of dams. This could have an impact on the state's ability to obtain grant funds through dam safety programs such as the U.S. Army Corps of Engineers' High Hazard Potential Dam Rehabilitation Grant Program and the National Dam Safety Program, both of which are currently subject to cost sharing or limitations and state funding conditionality. The total annual national funding for these two programs is $60 million and $13.9 million.

The Indiana state dam safety annual budget has more than doubled since 2010 to just over $1,000,000; $1,250 per state regulated dam, ahead of the national average of $900. This funding is dedicated to the regulation of dams in Indiana.

DNR currently estimates that they have a backlog of $80-115 million in maintenance, repair, rehabilitation and divestment of the IDNR owned dams. One-time Deferred Maintenance (DM) was provided over the last several years with an average expenditure of $1.25 million of projects executed annually to reduce that backlog (since May 2022). However, as conditions are better understood, that backlog is expected to grow faster than it is being reduced. Reliable funding is needed to reduce IDNR's risk-factor for maintenance, repair, rehab, & divestments of IDNR owned dams.

Table 6: Dam Safety Metrics



Source: ASDSO

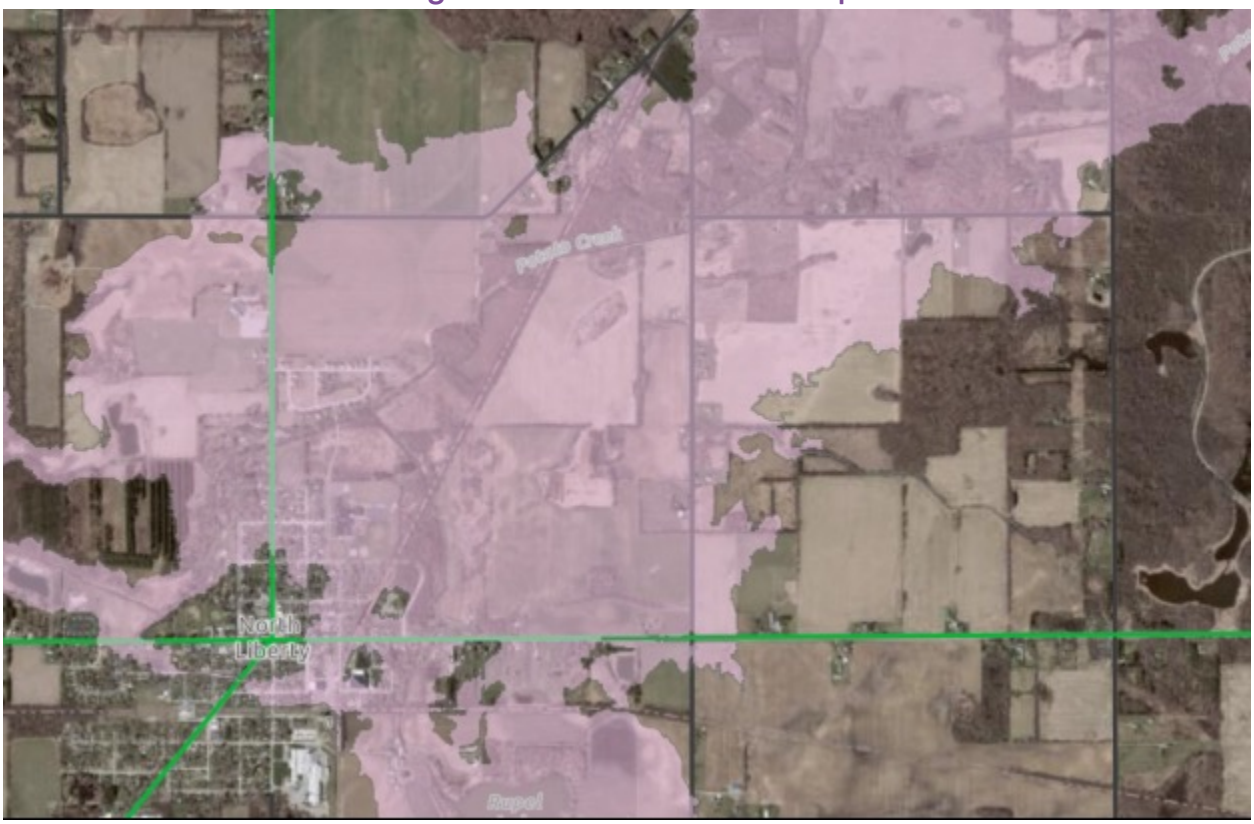
PUBLIC SAFETY & RESILIENCE

Indiana statute requires that any dam be inspected according to its hazard classification. IDNR currently completes the inspection on a fee basis for those dams not considered High Hazard. High Hazard dam owners are responsible for conducting inspections and submitting the resulting inspection report to the IDNR.

The IDNR reviews all instances of alleged non-compliance and aids local officials and property owners in instituting emergency procedures for areas threatened by the failure of a noncomplying dam. Indiana submits dam information to the NID and the IDNR collects condition rating data on state regulated dams. The state requires an Emergency Action Plan (EAP) for all dams with high and significant hazard potential. EAPs are a critical component to improving the safety of people living, working, or recreating downstream of dams. According to the NID, 55% of high hazard potential dams in Indiana have an EAP; however, the evaluation completed by ASDSO lists a much higher percentage at 68% (78% of state regulated high hazard dams

INDR has developed a tool for mapping what areas that would likely be inundated in the event of a dam breach. An example is provided in Figure 3 for an area downstream of Potato Creek Dam. Large portions of North Liberty would be at risk. These areas are not considered to be in the regulatory floodplain.

Figure 3 - Inundation Risk Map

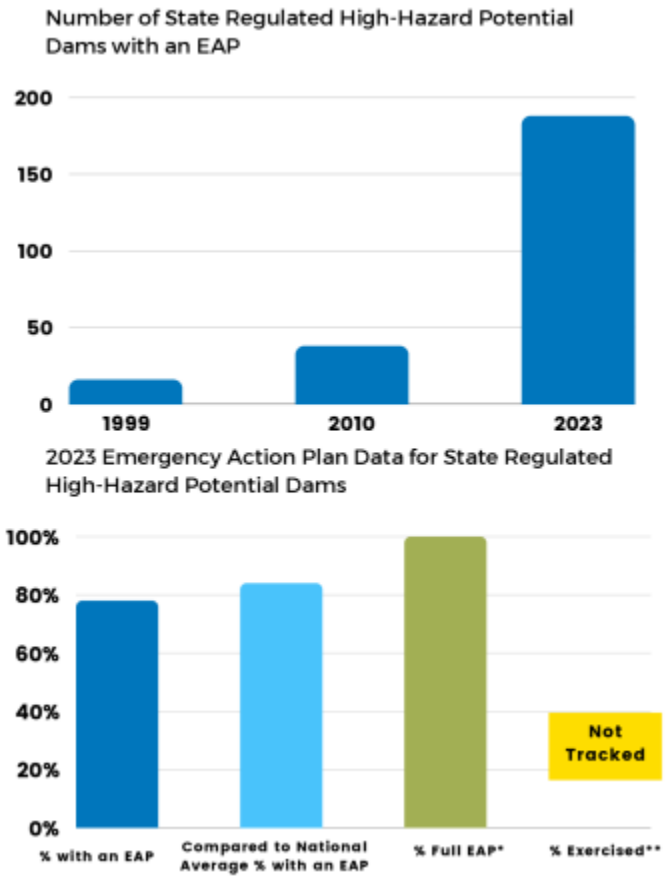


Source: IDNR

Proper planning addresses risk management, cost analysis, maintenance, and conservation and helps build infrastructure resilience. Other ways to build resilience in the community would be by engaging and educating communities near dams about the potential risks of failure from dam breaks, by communicating the multiple benefits of dam removals, and by developing and maintaining local regulations for public and private dams in the community. The National Dam Safety Program developed a benchmark to assist state officials in improving their dam safety programs. The program was modernized in 2023 to recognize new concepts and principles that have been generally recognized in the industry. A focus on communication and outreach was included, and Indiana scored a 100%, well above the 73% national average. Areas for improvement include program administration and legislative authorities.

There are very few local ordinances, and no state codes, that address zoning, land use and permitting of lands within dam failure flood risk areas downstream from embankment dams. These flood risk areas are often much larger than the regulated floodplain limits. Those living within flood risk areas downstream of dams are generally unaware of the risk that these lives pose to their life and property. As downstream conditions change (i.e. development) a low hazard dam can also quickly become a high hazard dam.

Table 7 - EAP Status



Source: ASDSO

INNOVATION

Indiana has been adopting a mix of pragmatic engineering, ecological restoration, and digital-monitoring innovations to reduce risk, restore river function, and extract more value from existing dam infrastructure. At the policy and implementation level, the Indiana DNR's Dam Safety Program is actively supporting owners with inventories, training, emergency planning, and coordinated removal and modification projects—recognizing that many low-head or obsolete structures present both public-safety hazards and ecological barriers.

A major visible trend is removal or reconfiguration of unsafe low-head dams. Across the state, multi-agency projects are removing nonfunctional low-head barriers (reducing drowning hazards) and reopening miles of stream habitat for fish and imperiled mussels. Where removal is not possible, owners are implementing engineered modifications (rock ramps, notches, or nature-based fish passages) to restore connectivity and improve hydraulic safety. Examples include:

- The removal of a low-head dam on Otter Creek (Vigo County) reopened 152 miles of stream for fish and aquatic wildlife, improving habitat connectivity and eliminating a public-safety hazard.
- On Big Blue River (near Edinburgh, Johnson County), a low-head dam was removed to benefit native fish (e.g. lake sturgeon, American eel) and mussel species — reconnecting 373 stream miles.
- The removal of Charles Mill Dam on the Mississinewa River re-established access to roughly 965 miles of previously blocked stream network.

On the renewable-energy front, Indiana projects are demonstrating small-scale, low-impact hydropower retrofits that fit into urban and park settings. A notable example near South Bend used compact propeller turbines and buried powerhouse design to generate carbon-free energy with minimal surface footprint—showing how existing weirs and drops can be responsibly repurposed for local clean energy.

Indiana agencies and researchers are also embracing digital and remote technologies to modernize dam oversight: sensor networks and real-time telemetry for lake/water-level monitoring, drones and LIDAR for inspection and condition assessment, and emerging use of machine-learning techniques (including deep-learning imagery analysis) to locate undocumented low-head dams and prioritize interventions across watersheds. These digital tools improve early warning, reduce inspection costs, and support data-driven prioritization of rehabilitation or removal.

Finally, federal and local watershed programs (NRCS watershed rehabilitation, FWS/NGO partnerships, and local utilities) are providing funding and technical assistance that enable owners—particularly smaller public or private owners—to implement innovative fixes rather than abandoning or leaving unsafe structures in place. This collaborative funding and technical model is accelerating both safety upgrades and ecosystem benefits.



Photo: Bridgeton, Indiana; Wildnerdpix



RECOMMENDATIONS TO RAISE THE GRADE

- Establish and maintain a statewide dam rehabilitation loan and grant program, with the potential to leverage available federal funds, primarily to assist municipally owned dams, but also with consideration to privately owned dams.
- Advance federal funds to support a meaningful national program for dams.
- Continue to provide an adequate budget, staff, and authority for the IDNR to carry out the dam safety program. Expand staff when a funding program is created.
- Implement changes to the state dam safety program regulations to increase enforcement efforts for dam inspections and dam rehabilitation.
- Ensure all high and significant hazard dams have an EAP and update and exercise these on a regular basis.
- Expand education about the importance of dams to ensure the public is aware of the importance and role of dams in their community and dam owners understand their responsibilities and liability toward the downstream public and environment.
- Educate stakeholders on the risks associated with properties located downstream of a dam through continued and expanded use of the IDNR Dam Breach Mapping tool.
- Ensure the advancement and expansion of the technical expertise of dam practitioners, including licensed professional engineers, hydrologists, engineering geologists, and geomorphologists, through training and higher education programs.
- Encourage all counties and municipalities to develop and maintain a comprehensive plan and zoning regulations that protect and address the role that both public and private dams have in the community.
- Continue investment in the removal of unnecessary dams and restoration of the river ecosystem.
- Leverage AI and invest in tools that would improve the accuracy and access of inspection data and results.

SOURCES

Association of State Dam Safety Officials (ASDSO)

Federal Emergency Management Agency (FEMA)

Indiana Code Section 14-27-7.5

Indiana Administrative Code, Title 312, Article 10.5

Indiana Department of Natural Resources, Division of Water (IDNR)

Association of State Dam Safety Officials, “National Inventory of Dams (NID),” accessed 2025.

Association of State Dam Officials, “Low-head Dam Inventory (LHDI),” accessed 2025.

Association of State Dam Officials, “ Indiana Dam Safety Performance Report”, 2024

United States Society on Dams (USSD), “Indiana Embankment Dam Hazards Largely Unknown and Under-appreciated,” 2021.

United States Society on Dams (USSD)

USACE, Corps Water Infrastructure Financing Program (CWIFP)

Drinking Water

C-



GRADE COMPARISON

IN: C-

Nat'l: C-

Photo: Water treatment plant; united photo studio

DRINKING WATER

EXECUTIVE SUMMARY

Drinking water systems in Indiana provide potable water to its residents and support commerce and industry. In 2024, the Indiana Department of Environmental Management (IDEM) reported 3,957 public water systems (PWS) in the state with 56% of consumers drinking groundwater and 44% of consumers drinking surface water. However, there are significant shortcomings to many aspects of these systems. Reliable and safe drinking water, in both quantity and quality, are necessary for public safety, health, and welfare. Water sourcing, treatment, and distribution systems are the main components with which water utilities serve their customers. With Indiana's estimated drinking water needs exceeding $8 billion, funding levels consistently being below those needs, and lead service line count ranking 11th-most of all states, the State faces several challenges regarding drinking water infrastructure. Substantial financial resources are needed now and, in the future, to make the state's drinking water systems more suitable and sustainable.

BACKGROUND

The significance of safe drinking water cannot be overstated. The National Academy of Engineering identifies "Water Supply and Distribution-Engineered systems" preventing the spread of disease and increasing life expectancy as one of the nation's greatest engineering achievements of the 20th century. Waterborne diseases such as cholera and typhoid which were responsible for significant mortality and illness just over a century ago, are today virtually non-existent in Indiana.

Indiana's water resources are vast and diverse – leading to a water infrastructure system with a similar diversity. Water systems across the state utilize the abundant surface waters from major rivers or tap into the rich aquifers underground to provide drinking water for millions of people. All public water systems are required to have a Public Water System permit through the Indiana Department of Environmental Management (IDEM).

The Indiana Finance Authority (IFA) reported 527 water utilities in its 2024 water loss audit with some utilities serving less than 100 people and others serving tens, if not hundreds, of thousands of people. IFA estimates that nearly five million people across the State are served by public water utilities, but many homes in Indiana are served by private wells.

CONDITION AND CAPACITY

Indiana's overall drinking water condition can be analyzed through three focus areas: water delivery (or transmission) infrastructure, water treatment methods, and lead service line replacements. In a 2018 report published by the State's Water Infrastructure Task Force, the committee highlighted both lead service lines and water main performance as components of Indiana's water infrastructure that need improvement. The EPA's 2023 Drinking Water Infrastructure Needs Survey and Assessment (DWINSA) echoed similar concerns – indicating there are still several tangible needs for Indiana's water pipes and lead service lines. Water treatment is a newer topic within Indiana's overall water infrastructure discussion due to the emergence of IDEM's PFAS-treatment requirements in 2021. Each of these subjects helps paint the picture surrounding Indiana's current water framework and helps cast a vision of what the future may look like.

A crucial indicator of the health of Indiana's water infrastructure is the ongoing and completed work relating to water pipes and structures throughout the state. The EPA estimates in the 2023 DWINSA that Indiana needs over $8 billion of work done to its water delivery systems– signaling that many water transmission systems across the state are lacking in some way. In 2024, the IFA responded to the estimated need by allocating two-thirds of its Drinking Water State Revolving Fund (DWSRF) funds to transmission and distribution-related projects. Examples of projects that DWSRF funded in 2024 include water main replacements, water tower replacements, new controls equipment and meters, and improving existing groundwater wells. The EPA and IFA statistics both indicate that more projects involving water main and equipment replacements or updates are needed across the state.

Water treatment methods have also been worked into Indiana's infrastructure discussion. The IFA has begun addressing water treatment by earmarking DWSRF funds for emerging contaminants – specifically PFAS (per- and polyfluoroalkyl substances). IDEM investigated the presence of PFAS in Indiana water systems from 2021 to 2024 and found that more than 30 systems had levels above the EPA advisory when testing. Since then, IDEM has started to implement sampling, collection, and testing requirements across the state. Several water systems have designed projects aimed at reducing PFAS levels in their water. Options to contain PFAS levels are relatively new in Indiana, but more information is bound to come as the industry completes research and work pertaining to it.

The work to reduce the number of lead service lines is another key factor in Indiana's water infrastructure. DWINSA ranked Indiana as the state with the 11th most lead service lines and the 14th most unknown service lines in the United States. IDEM required all water utilities to report the number and location of lead service lines by October 2024 and made the data readily available online for public consumption. The EPA DWINSA estimates that Indiana has over 265,400 lead service lines. Organizations such as 120Water have played a key role in helping utilities navigate the unfolding requirements the state has been enforcing regarding lead service lines such as the Lead Copper Rule Improvements (LCRI) initiative that includes more requirements for transparency and lead pipe removal. Removing lead service lines is an important piece of Indiana's water story and requires more efforts to make lead pipes a thing of the past.

The amount of water Indiana has available is another key component in evaluating its current and future infrastructure health. A general rule of thumb for evaluating the state's water capacity is that there is generally more groundwater available in the northern part of the state than in the southern part. The Indiana Chamber Foundation's 2024 Water Supply study referenced a 1980 Indiana Department of Natural Resources (DNR) report stating that groundwater reserves in the northeast corner of the state could produce wells with up to 1000gpm capacity while some areas south of Indianapolis would likely produce closer to 10gpm. Indiana's DNR has also monitored water-use data within the state since 1985 and has seen an increase in groundwater usage from then to 2021.

The Chamber recommended that Indiana water utilities take a strategic approach to address the water supply differences and increased usage across the state. For example, the Chamber recommended that the utilities in the southern part of the state, where groundwater

is less plentiful, work together and communicate so that all areas have access to the most reliable sources and that the utilities in the northern part of the state utilize availability studies to ensure the water supply is protected. The State (via IFA) has started developing regional water studies that are publicly available with more that are anticipated to be completed. The Chamber also mentioned that communication and public transparency will be essential as more business and industry come to Indiana.

An example emerging discussion regarding water capacity in Indiana is water use with data centers. This discussion is especially present in local press coverage where data centers are developing and may be further monitored at the state level as more information becomes available.

FUNDING AND FUTURE NEED

Indiana has several funding sources available for communities to finance solutions for their water utilities. Three noteworthy financial sources that communities utilize include the IFA Drinking Water State Revolving Fund (DWSRF), the grant programs through the Indiana Office of Community and Rural Affairs (OCRA), and the U.S. Department of Agriculture's (USDA's) rural development opportunities. The State has also received Infrastructure Investment and Jobs Act (IIJA) funds from the EPA that are mainly filtered through the DWSRF funding pool. OCRA grants are specifically targeted towards smaller communities and include grants for utility studies that provide a report for the community on their utilities' conditions and grants for construction projects that improve utility infrastructure. The USDA also has several financial resources for rural communities that include emergency grants, planning grants, and revolving funds. There are multiple resources available for water utilities in Indiana, but the financial need for the future far outweighs the funding available.

Indiana's funding need for its water infrastructure is clearly shown by the amount of money requested by water utilities across Indiana and the amount of future funding projected by leading water reports. The IFA reported utilities across the State requesting over $1.1 billion in the 2024 fiscal year and over $2.0 billion in the 2025 and 2026 fiscal years for DWSRF funding. This is not a major surprise as the Indiana Advisory Commission on Intergovernmental Relations (IACIR) predicted Indiana needing $6.6 billion in water improvements in its 2016 financial assessment. The 2023 DWINSA displayed concerns of a similar magnitude by stating that Indiana needs over $11 billion of water work completed. These leading reports clearly show that Indiana has no shortage of water infrastructure improvements to make, but the funding availability is not in a similar situation.

Despite efforts to fund Indiana's water infrastructure improvements, the state is still falling short on the bottom line. DWSRF has never provided more than 30% of the requested funds each year, so many projects are not given the financial backing they need through the state's revolving fund. This has held true even with the EPA giving Indiana over $200 million in water and wastewater funding through IIJA in 2024. The state ultimately only had enough SRF funding for less than $300 million-worth of water-specific projects in 2024 (while over a billion dollars were requested, as noted in the previous paragraph). OCRA construction grants are also currently maximizing at $750,000 per project. In 2025, Baker Tilly found that water rates may have been impacted by the large projects that are aiding Indiana's older infrastructure. The June 2025 rate study stated that water rates have increased by an average of 16.6% across the state from December 2021 to December 2024.

OPERATION AND MAINTENANCE

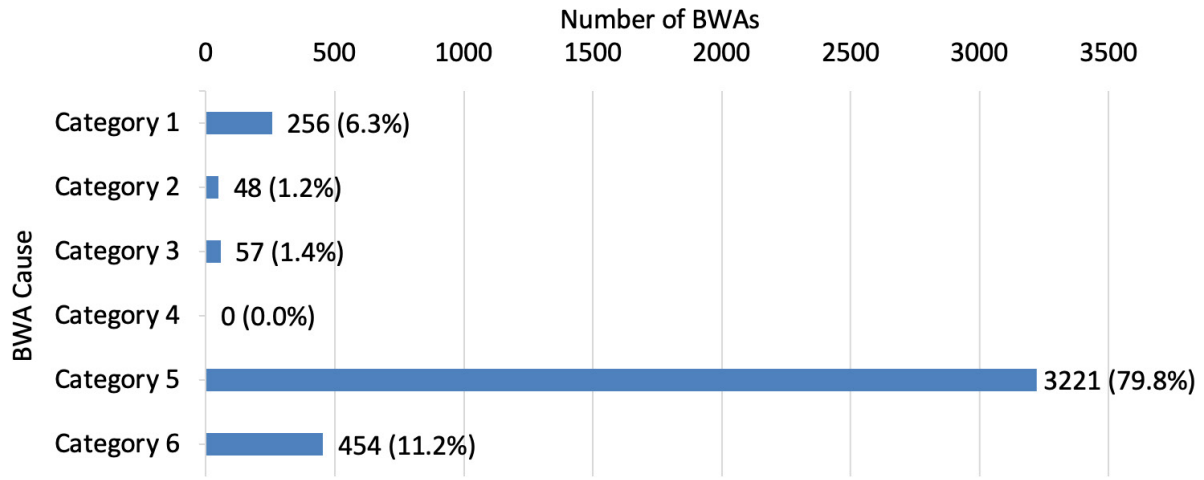
Operation and maintenance are essential for drinking water systems, continually operating 24 hours a day, every day, all year long. Operation and maintenance expenses are typically covered by sales revenue of the water and accounted for differently than capital expenses that may make use of grants, loans/bonds, or other long-term financing. The Indiana Finance Authority reports for 2023 that "Indiana utilities produced over 46.8 billion gallons of water that did not generate revenue, resulting in a financial loss of over $62.9 million." More concerning is that "from 2019 to 2023, the State of Indiana saw an increase in the total volume and cost of non-revenue water."

Information from the *Periodic Review of Basic Rates & Charges* by the Indiana Utility Regulatory Commission indicates that over 28% of the water utilities had deficits or under-earned authorized revenue. For communities and utilities that cannot, or struggle to, generate sufficient revenue, necessary maintenance is deferred and operations can become unreliable.

A major challenge to effective operation and maintenance is staffing. Improved training for the utility operations workforce is noted as an emerging priority activity area by EPA in the January 2024 report, *Roadmap to a Secure and Resilient Water and Wastewater Sector*. There is significant need for trained personnel to operate and work at drinking water treatment plants in Indiana. For example, the Alliance of Indiana Rural Water, a non-profit organization of water and wastewater, regularly has many job openings posted on their website, often for multiple months. IDEM states that the "Indiana Operator Certification Program provides training and certifies individuals who engage in and oversee the operations of a public water system." Challenges with finding enough qualified workers persist. In 2000, water operator requirements increased when "Indiana's Revised Operator Certification Rule became effective." More recently, asset management program requirements were established by law (Indiana Code § 8-1-2-128) in 2025. While the requirements for these asset management programs are becoming effective, the first reporting cycle is just beginning and thus the benefits of asset management to the targeted water utilities are not yet realized.

While water treatment is most generally safe for consumption, concerns with PFAS, commonly referred to as "forever chemicals," are becoming more of an issue. To address this issue throughout the state, starting in February 2021, IDEM initiated an extensive PFAS Sampling Project where "IDEM facilitated PFAS monitoring at all Community Public Water Systems (CWS) throughout the state of Indiana" with results indicating some detection in both source (untreated) water as well as finished (treated) drinking water. Details of the sampling project and results are presented on the IDEM website. The EPA notes that "three treatment processes can be effective for PFAS removal: granular activated carbon, ion exchange resins, and high-pressure membrane systems," although such treatment processes are generally not employed in Indiana at most water treatment plants. Disinfection byproducts, the result of chloramine use in water treatment, can lead to a chemical breakdown that could result in a toxic effect. It must be recognized that disinfection is a necessary aspect of water treatment, but nonetheless, depending on the disinfection methods used, negative subsequent constituents may be present in the finished water. Water system disruptions through water main breaks and boil orders occur routinely throughout Indiana. This is much attributed to the significant age of the infrastructure.

Boil Water Advisory (BWA) and water main breaks occur regularly across Indiana. Nationally, BWA are substantially attributed to water main breaks, system repairs, and other loss of pressure events as shown in the following graphic from the National Occurrence and Causes of Boil Water Advisories in the United States Report to Congress.



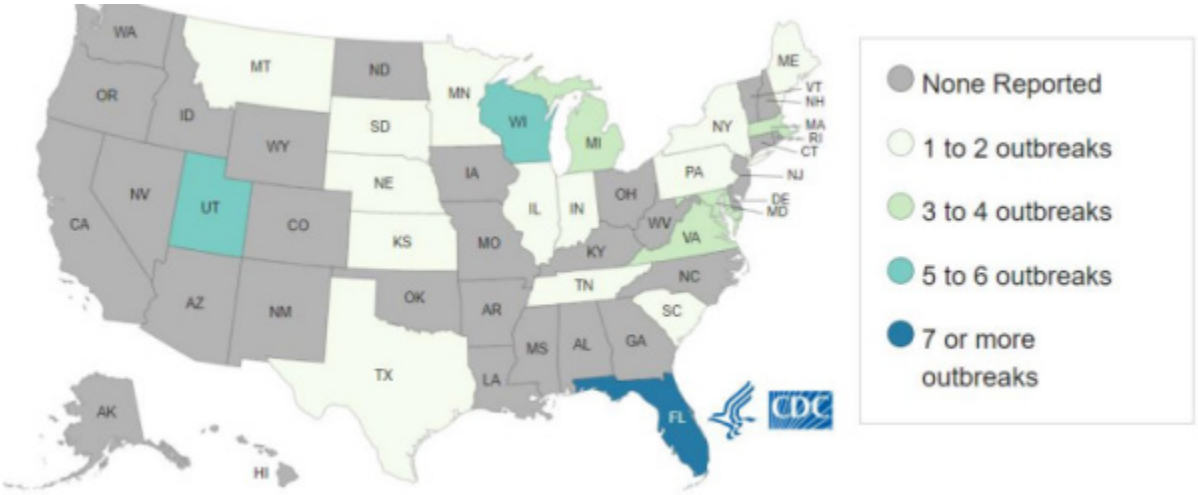
Category 1: Microbial violation, microbial contamination identified, sanitary risks found, treatment technique failures, and treatment interruptions
Category 2: Long-term/extended deficiencies (vulnerable or improperly constructed source, required treatment not provided)
Category 3: Natural or other disasters
Category 4: Backflow events
Category 5: Main breaks, disruption system repairs, and loss of water pressure events
Category 6: Unknown/not identified

Source: EPA National Occurrence and Causes of Boil Water Advisories in the United States Report to Congress

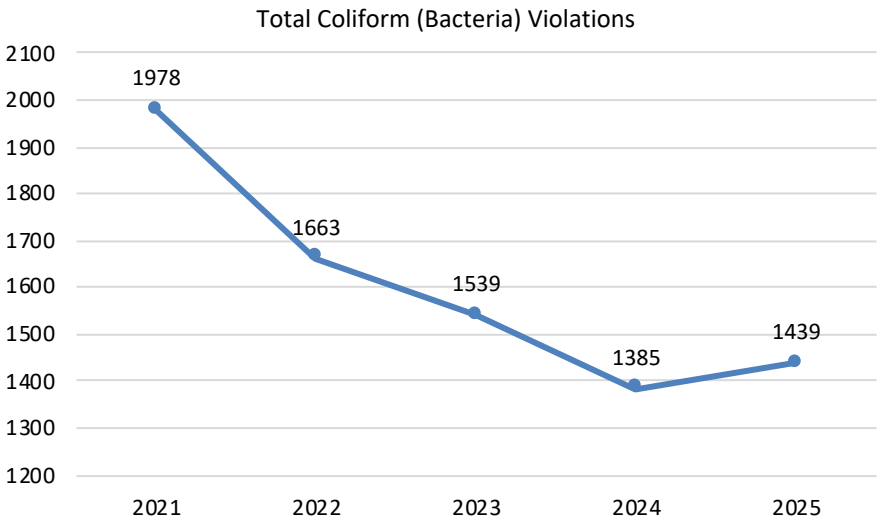
PUBLIC SAFETY

Public safety aspects of drinking water systems in Indiana are characterized by violations and illness as well as fire protection. As an example, a key indicator of drinking water quality is total coliform bacteria. Total coliform bacteria violations are evidence of bacteria levels in excess of permitted amounts. A violation does not necessarily mean that any illness or negative consequence to any person occurred. Fortunately, outbreaks of water-borne illness have not been common in recent years. Nonetheless, persons with compromised immune systems may experience illness when the general population does not. Indiana was shown to have one to two outbreaks of waterborne illness in the 2021 Waterborne Disease Outbreaks in the United States report by the Center for Disease as shown in the following image.

Reliable and safe drinking water, in both quantity and quality, are necessary for public safety, health, and welfare.



Source: 2021 Waterborne Disease Outbreaks in the United States *report by the Center for Disease Violations of Total Coliform water quality standards in Indiana continue to occur albeit with a clear downward trend, dropping about 30% over the past several years with a modest increase of approximately 4% in the most recent year reported as shown in the following chart.*



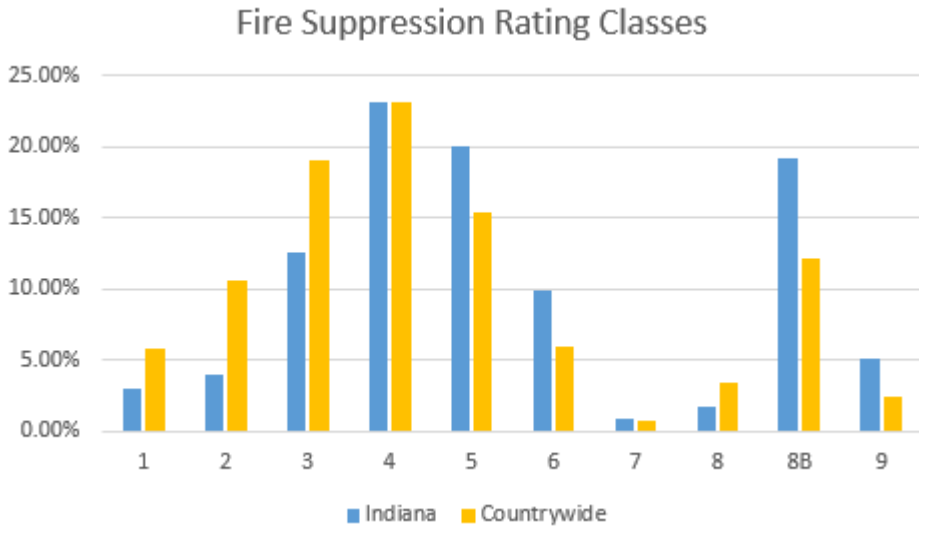
Source: Indiana Department of Environmental Management

Online database search of Indiana Department of Environmental Management records indicates a range of 612 to 788 water main breaks over the time period from 2021 through 2025 are as follows.

Year	Number of Water Main Breaks
2021	641
2022	709
2023	612
2024	657
2025	788

Source: Indiana Department of Environmental Management

Water supply makes up 40% of "the Fire Suppression Rating Schedule (FSRS) [that] measures the major elements of a community's fire protection system and develops a numerical grading called a Public Protection Classification (PPC)." Although many larger cities in Indiana do have Class 1 and Class 2 ratings, which are the best, most water systems in Indiana are not rated as positively, with a majority of systems receiving ratings of 4 or higher indicating lower fire protection. Furthermore, communities in Indiana generally have worse ratings than the rest of the country. This graphic shows FSRS and PPC ratings for the percentage of communities in Indiana compared to the percentage of communities countrywide.



Source: Verisk's ISO Community Hazard Mitigation

Overall, O&M and capital improvement projects are drastically underfunded in Indiana. Indiana's population is growing slowly with certain localities experiencing rapid growth. Increasing population and water consumption are outpacing rate increases, challenging infrastructure upgrades. Indiana received almost $600,000,000 in requests for DWSRF in the past year, while only being able to fund about $100,000,000 worth of projects.

Earmarks known as "Community Grants, (CG)" or "Congressionally Directed Spending, (CDS)" grants are projects proposed by members of Congress for projects in areas served by their constituents. Earmarks taken from the Drinking Water State Revolving Fund reduce the amount of remaining DWSRF funding that comes to state for drinking water programs. DWSRF earmarks have been increasing. Earmark dollars are permanently removed from the DWSRF pool – losing years' worth of added revenues for other projects. To make up for earmark funds taken from the DWSRF allocation, Indiana has also allocated an additional $25 million in FY 2025 for drinking water projects

PUBLIC SAFETY

Indiana laid the foundation for safe drinking water practices on May 24, 1610, when the first sanitation law was written and enforced in Jamestown, VA. The Indiana Department of Health was created in 1908, and ODW was established in 2003 to "protect public health and ensure that all Indianas have a safe and adequate supply of drinking water. Most waterworks are in compliance with the Safe Drinking Water Act and Indiana Waterworks Regulations.

RESILIENCE

Drinking water systems are among the most resilient infrastructure systems due to several key design features. First, these systems often utilize multiple wells or reservoirs as water sources particularly for larger communities. The biggest cities in Indiana are beneficiaries of decisions decades ago to establish sizable reservoirs. Other large cities obtain water from multiple wells drawing from plentiful aquifers or from some of the larger rivers or lakes in the country. Secondly, treatment plants are designed with "treatment trains," allowing portions of the plant to operate while other portions are offline for maintenance. While not common, some communities have multiple separate drinking water treatment plants. Third, elevated water towers, which are pervasive throughout the state, ensure a consistent supply of treated water maintained at sufficient pressure. Some communities use elevated water storage tanks as landmarks or branding. Finally, pipe distribution networks are largely comprised of "loops," enabling water to flow in multiple directions, while strategic valving allows localized repairs without impacting the entire network. Nevertheless, the ability of drinking water systems to function through natural disasters, environmental change, pollution & contamination, cybersecurity attacks, terrorism or vandalism continues to be a risk.

In 2018, America's Water Infrastructure Act (AWIA) was signed into law, amending the Safe Drinking Water Act. AWIA "requires community (drinking) water systems (CWSs) serving more than 3,300 people to develop or update risk and resilience assessments (RRAs) and emergency response plans (ERPs)." Water systems that do not comply are considered in violation of this law.

INNOVATION

Innovation with drinking water systems in Indiana involves participation with EPA programs and research at universities. Indiana was one of five states involved with an EPA program titled "In-Depth Analysis: Stage 2 Disinfectants and Disinfection Byproducts Rule and Consecutive Systems Challenge." However, no community in Indiana was involved with the subsequent case studies for disinfection byproduct sampling.

The role of research universities in terms of water supply is noted in the 2024 report, Water Policy and Planning in Indiana, prepared by the Indiana Chamber Foundation. Particularly the Indiana Water Resources Research Center at Purdue University and the Center for Earth and Environmental Sciences located at Indiana University Indianapolis were identified and a statement that "universities are staffed with nationally and internationally recognized water experts" with the inclusion of Notre Dame, Ball State, Indiana State along with other smaller institutions with programs "critical to understanding the management and protection of streams, lakes, watersheds, and aquifers."

Recent legislation requiring asset management plans for drinking water utilities in Indiana is evidence that the state legislature supports long term, more effective management of this critical infrastructure. Indiana Code 8-1-2-128 requires utilities to submit asset management plans every four years beginning now in 2026.



RECOMMENDATIONS TO RAISE THE GRADE

- *Establish a centralized authority for water infrastructure that will oversee infrastructure condition, capacity, and funding* – The Indiana Legislative Council's 2018 Water Infrastructure Task Force recommended that the governor appoint a cabinet official specifically for this task. Having a department within the State government tasked with coordinating between IDEM, IFA, IURC IDOH, EPA, and other agencies should help Indiana maintain a solid understanding of its infrastructure health and future needs. It will also help the State monitor the latest patterns regarding rates and operating costs for water utilities.
- *Intentionally allocate funds so that lead service lines become a thing of the past* – In November 2027, Indiana should have a very good estimate of how many lead service lines are in the ground (because of LCRI rules, per 120Water). The EPA will likely continue applying regulatory restrictions to systems with lead pipes. Indiana water utilities will have one less item to worry about once these pipes are eliminated. If the state allocates significant financial resources towards LSL removal, it will then be free to focus on other matters in the future. This is comparable to the "paying off your smaller debts first" rule in personal finance.
- *Provide means for communities impacted by PFAS to alter source water or add treatment schemes.* PFAS is an emerging constituent in drinking water and testing indicates presence both in water supply and finished water in Indiana.
- *Develop robust asset management plans for drinking water systems throughout the state.* Employing concepts of asset management to align both ongoing costs with long term investments should enable communities to plan and develop drinking water systems that are more resilient and better serve the customer base. Additionally, the customer base may appreciate learning a more true, representative cost of drinking water.

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Energy

D



GRADE COMPARISON

IN: D

Nat'l: D+

Photo: Wind turbines; Wirestock Creators

ENERGY

EXECUTIVE SUMMARY

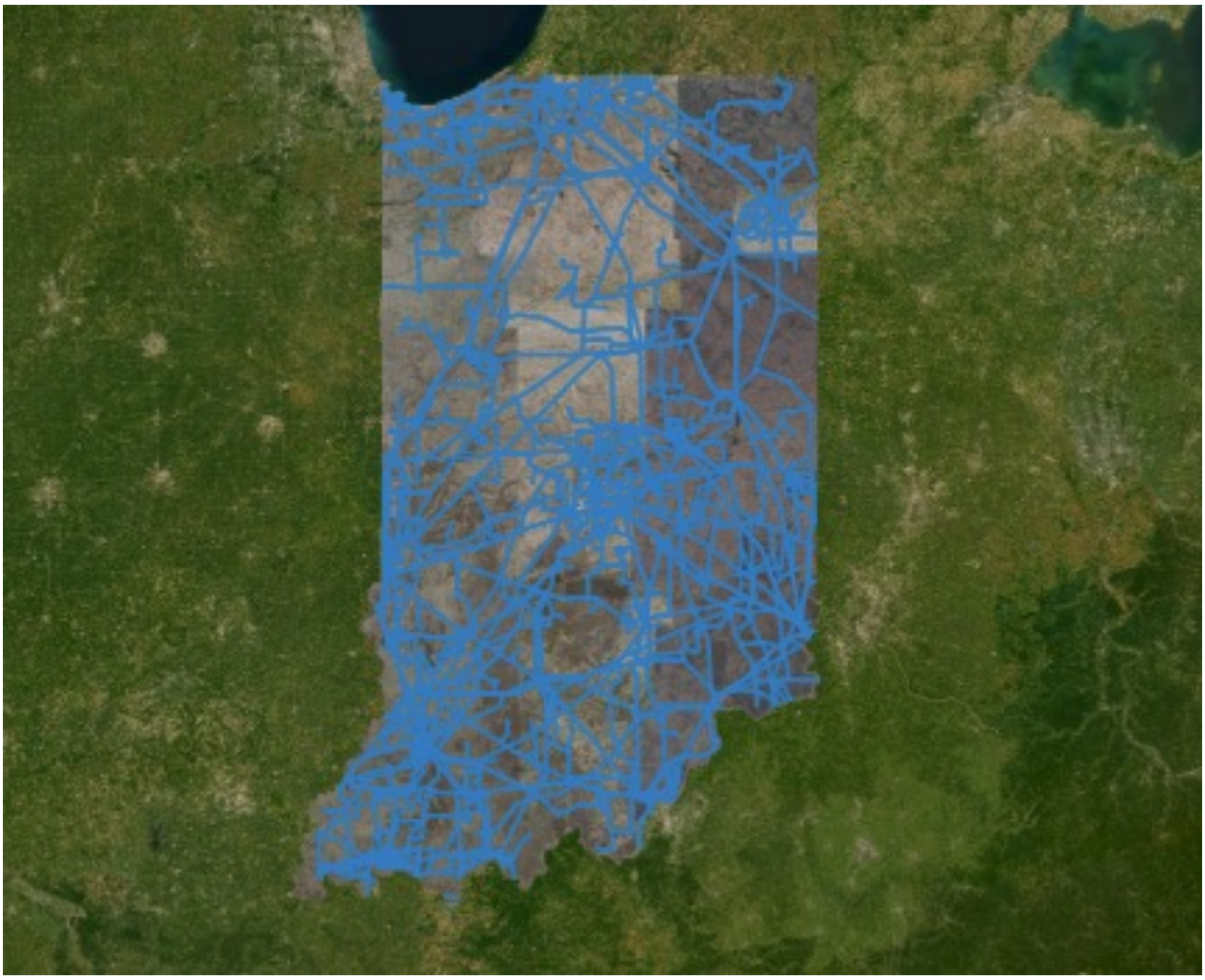
Indiana's energy infrastructure is facing three converging pressures: a rapid expansion of data centers projected to account for roughly 41% of all state electricity demand by 2030; accelerating coal-plant retirements outpacing replacement capacity, requiring U.S. Department of Energy emergency orders to avoid capacity shortfall; and the sharpest residential rate increases in the region, prompting a formal Indiana Utility Regulatory Commission (IURC) affordability investigation in early 2026. These risks are partially offset by Indiana's Transmission, Distribution, and Storage Improvement Charge (TDSIC) mechanism and an active Pipeline Safety Division (PSD), creating transparency and accountability for energy companies, and increasing trust for ratepayers. Sustained investment in replacement clean generation, transmission and distribution (T&D) modernization, and resilience are essential for supporting the current and future needs of Indiana's residents and businesses.

BACKGROUND

Indiana's electricity infrastructure is owned and operated by a mix of five investor-owned utilities, 72 municipal utilities, and several rural electric cooperatives, with oversight provided by the IURC. The state's grid is undergoing significant stress as coal-fired generation retires, energy-intensive industries and data centers drive demand, and residential ratepayers absorb more grid modernization costs.

Indiana's grid was built around centralized, coal-based generation and is now being pressed to accommodate a fundamentally different energy mix. Integrating variable renewable resources, managing large new industrial loads, and replacing retiring baseload plants all require significant system upgrades that the existing infrastructure was not designed to handle.

Map of Electric Power Transmission Lines in 2022.



Source: Indiana Geographic Information Office.

CONDITION AND CAPACITY

Indiana's electricity system currently meets short-term demand through its participation in the Midcontinent Independent System Operator (MISO), which coordinates grid operations across a multi-state region. While overall system adequacy is projected to be sufficient, the grid is increasingly vulnerable during periods of extreme weather, peak demand, and reduced output from variable renewable resources, exposing capacity constraints under stressed conditions.

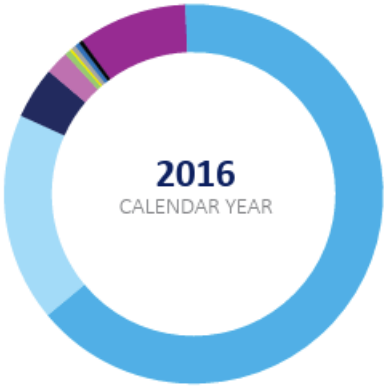
Significant short and long-term capacity challenges are anticipated as approximately 3,900 megawatts of coal-fired generation are scheduled for retirement by the end of 2028. At the same time, electricity demand is expected to increase due to electrification trends and the growth of energy-intensive facilities such as data centers. Although natural gas generation has offset much of the recent decline in coal, this transition raises concerns related to fuel dependence and long-term

system reliability.

Indiana's grid was built around centralized, coal-based generation and is now being pressed to accommodate a fundamentally different energy mix. Integrating variable renewable resources, managing large new industrial loads, and replacing retiring baseload plants all require significant system upgrades that the existing infrastructure was not designed to handle.

Indiana's electricity mix reflects its historical reliance on fossil fuels. Coal remains the dominant generation source, though output has declined approximately 15% since 2020 as the coal plants continue to retire. Natural gas has offset most of that decline, while renewable resources supplied 15% of total net generation in 2024, with biomass, solar, and hydropower providing an additional 4%. Indiana also produces approximately 3,251 million cubic feet of natural gas and 20,147 thousand short tons of coal annually yet still imports approximately 19.4% of its total energy consumption, limiting supply flexibility during regional disruptions. The IURC regulates 17 natural gas distribution companies, though four companies serve approximately 95% of customers across 43,311 miles of distribution lines and 1,815 miles of intrastate transmission lines.

Pie chart of Indiana fuel mix in 2016 and 2025.



2016 Fuel Mix
- Coal: 64.6%
- Natural gas: 17.8%
- Nuclear: 9.3%
- Wind: 4.4%
- Solar: 0.2%
- Other fuels: 3.6%



2025 Fuel Mix
- Coal: 40.4%
- Natural gas: 32.6%
- Nuclear: 10.0%
- Wind: 8.5%
- Solar: 5.5%
- Other fuels: 2.9%

Source: Indiana Utility Regularity Council, 2026 Annual Report.

OPERATION AND MAINTENANCE

Operation and maintenance activities for Indiana's energy infrastructure have reached a critical transition point where the focus has shifted from routine preventative care to high-cost reactive repairs and system modernization. Indiana utilities currently maintain infrastructure at a functional level, but performance is increasingly strained by aging assets and more frequent severe weather events.

Electric Transmission and Distribution

The electric transmission and distribution network in Indiana is operating near its physical capacity. A significant portion of the state's wood-pole distribution lines and steel transmission towers require accelerated replacement to prevent failure. Much of Indiana's distribution infrastructure was installed during the post-WWII housing and industrial boom. These assets are now exceeding their design lives simultaneously. The replacement cycle is also being accelerated by the need to harden the grid against extreme weather. Major investor-owned utilities are significantly increasing their O&M budgets to address these challenges by utilizing legislative mechanisms that allow them to recover infrastructure costs outside of traditional utility rates. This ensures a more continuous flow of funding for system improvements.

Vegetation management remains a challenge for reliability, as trees continue to be a leading cause of outages across the state. The rising frequency of severe weather has forced O&M teams into a costly cycle of emergency response, with storm-related repairs representing a significant unbudgeted cost. This financial pressure diverts funds that were originally meant for proactive system upgrades, since utilities must prioritize immediate restoration over long-term reliability projects.

Gas Pipelines

Indiana's Pipeline Safety Division regulates over 45,000 miles of pipeline infrastructure statewide. The primary O&M challenge for gas operators is the ongoing identification and remediation of aging infrastructure, particularly materials such as cast iron and bare steel, which are subject to federal replacement mandates. Beyond material decay, damage during excavation remains a persistent cost driver. The Pipeline Safety Division completed 1,354 inspection days in 2024 to help safeguard the state's intrastate pipeline system. Civil penalties from Indiana 811 violations allowed more than $1.7 million to be invested in the Underground Plant Protection Account (UPPA) fund, which supports education and training programs aimed at reducing damages to underground utilities.

EV Infrastructure

The emergence of EV infrastructure introduces a new O&M category focused on high-speed DC charging. Under the National Electric Vehicle Infrastructure (NEVI) program, Indiana's NEVI-funded charging sites must maintain a 97% average annual uptime per charging port, which requires software maintenance and constant connectivity. While NEVI contributes to O&M costs for the first five years of operation, these expenses will eventually be absorbed by private operators or incorporated into ratepayer structures once federal subsidies expire.

FUNDING AND FUTURE NEED

Indiana's energy investment landscape has changed significantly in recent years. Utilities have historically relied on ratepayer revenue to fund infrastructure improvements, but the scale of current needs — driven by aging assets, grid modernization, and explosive demand growth from data centers and electrification — has drawn substantial new federal funding and intensified scrutiny over how costs are allocated among customers.

One key funding mechanism already in place is the Transmission, Distribution, and Storage Improvement Charge (TDSIC), which allows Indiana investor-owned and municipal utilities to recover the 80% of the costs of pre-approved infrastructure improvements between traditional rate cases, with rate increases allowed to be no more than 2% of the total retail revenue of the utility. This provides a more predictable and continuous funding stream for system modernization compared to states that rely solely on periodic rate proceedings.

Federal Funding

Federal funding through the Infrastructure Investment and Jobs Act (IIJA) has provided a critical cushion. As of January 2025, over $152 million in IIJA funding had been announced in Indiana for clean energy and power. Through the IIJA's Grid Resilience Grant Program, Indiana is estimated to receive approximately $23 million over five years. The IIJA has also

directed substantial investment to Indiana through competitive clean energy programs covering buildings, manufacturing, and grid modernization, along with an additional $90 million from NEVI and Charging and Fueling Infrastructure (CFI) grants supporting EV charging infrastructure. However, a significant funding gap remains as smaller utilities and rural communities often lack the staff capacity to navigate complex federal grant applications, raising concerns that rural regions may fall further behind as the energy transition accelerates.

Affordability

Affordability has become the primary point of contention in Indiana's energy model. In early 2026, the IURC launched a formal investigation into utility affordability as residential rates rose at the sharpest pace in two decades. The statewide average residential electric bill increased more than $28 per month (17.5%) between 2024 and 2025. This is the highest single-year jump recorded since 2005. Indiana is currently evaluating the long-term sustainability of a ratepayer-funded model, particularly as residential consumers are contributing to the costs of grid modernization alongside the infrastructure expansions required for large industrial and data centers.

Generation Capacity

Indiana's future need is dominated by a reliability-first strategy as the state transitions its generation portfolio. Approximately 3,900 megawatts of coal-fired capacity are scheduled for retirement by 2028, though federal emergency orders have already begun to extend some of those deadlines. The U.S. Department of Energy issued emergency orders in late 2025 to keep two Indiana coal plants operating past their planned retirement dates. State regulators have moved to extend the operations of aging plants while simultaneously requiring capital investment in natural gas and renewable resources to ensure a stable reserve during peak winter events and severe weather.

Data Center Demand

The rapid expansion of data centers represents the most disruptive variable in Indiana's future energy planning. The State Utility Forecasting Group's 2025 Indiana Electricity Projections report projects approximately 66,000 out of 160,000 gigawatt-hours of electric consumption in 2030 will be attributable to data centers, roughly 41% of the state's total electricity. This extraordinary concentration of demand is unprecedented in Indiana's planning history and places severe strain on the development of new capacity. While traditional forecasts projected annual demand growth of approximately 1%, high-growth scenarios driven by data center development now project increases of up to 3.5% annually through 2030. As new transmission lines and power plants are built to serve these facilities, questions arise about who pays: current rules allow those costs to be spread across all utility customers, including homeowners and small businesses. Without clearer policies on how large energy users contribute to grid expansion costs, everyday ratepayers risk picking up a significant portion of the bill.

PUBLIC SAFETY, RESILIENCE, AND INNOVATION

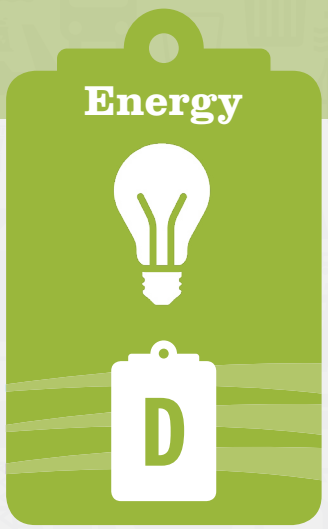
Indiana's energy infrastructure presents notable public safety concerns related to increasing exposure to extreme weather and aging systems. Between 2020 and 2024, NOAA recorded an average of 6.2 major weather-related events per year in Indiana, causing losses exceeding $1 billion each, with total statewide losses estimated between $5 billion and $10 billion over the period. NOAA considers Indiana and the broader central United States to be among the region's most vulnerable to weather-related energy disruptions due to geographic exposure to severe convective storms and winter weather events. These events stress electric and natural gas systems, increasing the risk of service disruptions and public safety hazards during storms, heat waves, and other weather emergencies. For example, a derecho in August 2026 left approximately 80% of NIPSCO's customer base in northwest Indiana without power, some for a number of weeks. NIPSCO reportedly brought in 4,000 workers (both internal and contracted) to work to restore power in the region. This marks the worst outage in the company's history, but it also illustrates how energy companies must be more proactive in preparing for severe weather.

Pipeline integrity is a compounding safety concern. The IURC PSD evaluates approximately 2,100 cases per year involving damage to underground gas lines, primarily caused by failures to call Indiana 811 before excavation. The Indiana Department of Environmental Management has formally investigated over 50 natural gas spills since 2011. Damage to gas infrastructure carries the potential for explosions, personal injury, and property damage — underscoring the importance of 811 compliance and proactive asset management throughout the state. Although none of these natural gas spills investigated reportedly resulted in injuries or property damage, in early 2026, IURC fined the Northern Indiana Public Service Company (NIPSCO) $463,400 for failure to locate gas lines in a timely manner, resulting in damage to natural gas facilities.

While state energy policy acknowledges the importance of system resilience, there is limited evidence that resilience requirements are consistently embedded in energy infrastructure planning, design, or regulatory processes. The Indiana Office of Energy Development has not identified any adopted policy requiring new or existing energy infrastructure to meet defined resilience standards. This absence of mandatory hardening measures limits Indiana's ability to proactively reduce risk and rapidly recover from disruptive events.

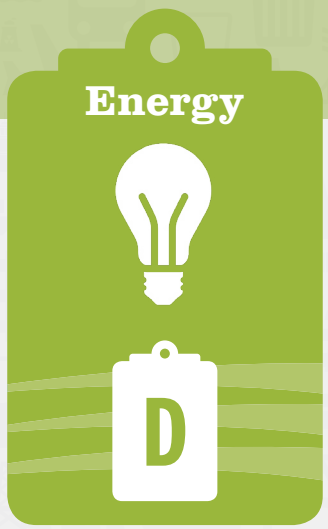
Indiana is also taking steps to protect energy infrastructure from digital threats. Under 2025 state legislation, utilities must now conduct annual cybersecurity reviews and promptly report suspected security breaches to state officials. These requirements help ensure that Indiana's grid is defended against cyberattacks alongside the physical hazards that have traditionally driven infrastructure planning.

Innovation within Indiana's energy sector remains limited and uneven. While some investments have been made in clean energy deployment, electric vehicle charging infrastructure, and efficiency programs, there is little documented adoption of advanced grid technologies, monitoring tools, or distributed solutions such as microgrids. Without broader implementation of innovative technologies and practices, opportunities to improve safety, resilience, and system performance remain underutilized.



RECOMMENDATIONS TO RAISE THE GRADE

- Invest in firm, dispatchable replacement generation capacity. Indiana must advance coordinated resource planning to replace retiring coal capacity while meeting surging demand from electrification and hyperscale data centers. Sufficient dispatchable capacity is essential to maintaining reliability during peak winter events and extreme weather.
- Expand and modernize transmission infrastructure. Strategic transmission investment is needed to accommodate shifting generation sources, integrate renewables, reduce reliance on imported energy, and serve new high-load industrial customers — with transparent cost-allocation frameworks that protect residential and small-business ratepayers.
- Harden the electric distribution system against extreme weather. Indiana should require utilities to apply the most current consensus-based design standards for overhead T&D lines, poles, and substations, and prioritize vegetation management and infrastructure hardening to reduce storm-related outage cycles.
- Adopt formal resilience standards for energy infrastructure planning. State policy should require that new and existing energy infrastructure incorporate defined resilience measures. Indiana should also establish state coordinators to help smaller utilities access federal IIJA grid resilience funding.
- Strengthen pipeline safety and public protection programs. Expand funding for Indiana 811 outreach and enforcement to reduce the approximately 2,100 annual underground utility damage incidents and improve coordination between utilities and emergency responders to minimize the risk of gas infrastructure failures.



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Roads

C-

GRADE COMPARISON

IN: C-

Nat'l: D+

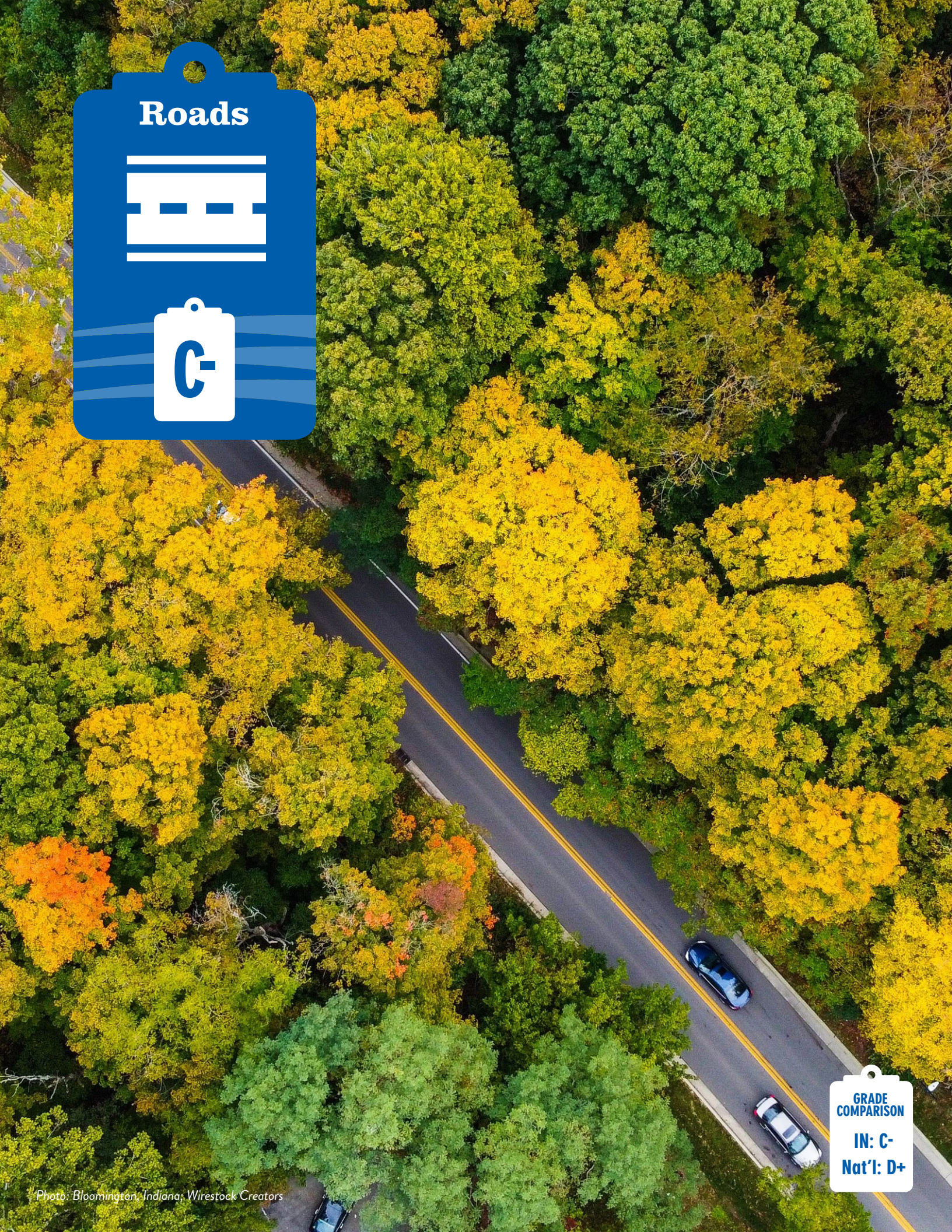


Photo: Bloomington, Indiana: Wirestock Creators

ROADS

EXECUTIVE SUMMARY

Indiana's roadway system underpins statewide mobility, economic activity, and freight movement. With more than 105,000 miles of public roads, the system faces growing challenges related to aging pavements, congestion, safety, and funding sustainability. About 17% of Indiana's major roadways are in poor or mediocre condition, and local roads fare worse, with nearly a third of city, town, and county roads rated poor. Driving on deteriorated roads costs Indiana motorists $1.6 billion annually – $336 per driver – in additional vehicle operating expenses.

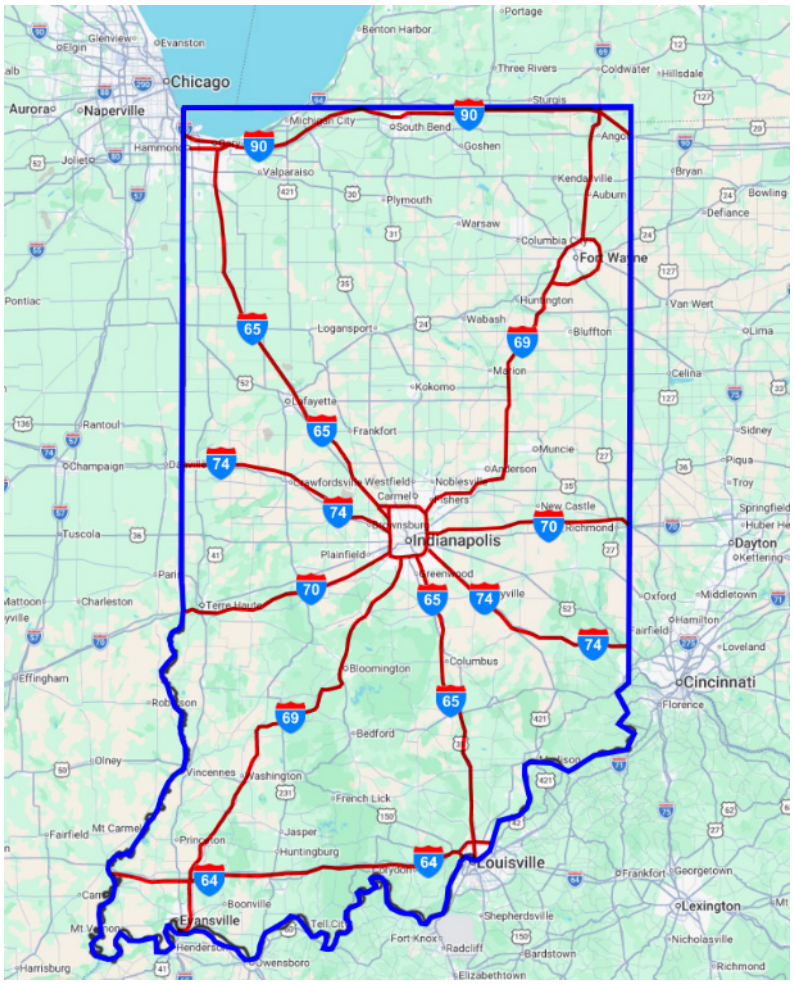
While legislative reforms in 2017 stabilized transportation funding and enabled data-driven asset management, long-term funding gaps persist. An estimated $474 million is needed annually just to maintain current local road conditions, rising to $1.9 billion to eliminate poor and failed local roads over the next decade. Traffic fatalities remain a serious concern, with rural roads and vulnerable road users facing elevated risk. Continued investment in preservation, safety, resilience, and sustainable funding will be required to maintain system performance and improve outcomes statewide.

CONDITION AND CAPACITY

As the "Crossroads of America," Indiana carries a dense concentration of interstate corridors that serve national freight movement. The state's roadway network includes 105,928 miles of public roads, the majority of which are owned and maintained by counties, cities, and towns. The Indiana Department of Transportation (INDOT) oversees roughly 11,169 miles of state highways and interstates and coordinates with local agencies to support statewide mobility, economic competitiveness, and public safety. The network is predominantly rural, roughly 76.5% rural versus 23.5% urban by mileage.

Indiana's roadway system is extensive and increasingly strained. Approximately 17% of major roadways are in poor or mediocre condition, 31% of city and town roads are in poor condition, and 27% of county roads are in poor condition. Congestion is a growing concern in urban areas, where roughly 29% of urban interstate segments experience recurring congestion. This congestion, including in the Indianapolis metro area and Northwest Indiana near Chicago, is expected to worsen as traffic grows. Travel demand has climbed steadily. Since 2000, vehicle travel on Indiana's roads has increased by 25%, while the state's population has grown by only 15%. This rising demand continues to accelerate wear on an aging system.

Figure 1. Indiana's roadway network.



Adapted from INDOT TCDS basemap; Map data: Google

Table 1. Pavement Conditions on Indiana Roads

Pavement Condition	City & Town Roads	County Roads
Good	28%	28%
Fair	41%	46%
Poor	31%	27%
Failed (subset of poor)	7%	7%

Deferred maintenance has tangible consequences for users. Unaddressed roadway conditions cost Indiana motorists an estimated $1.6 billion each year, or about $336 per driver, through additional repairs, accelerated vehicle depreciation, and increased fuel and tire consumption. Without sustained reinvestment, pavement deterioration and capacity constraints are expected to worsen, reducing reliability and increasing long-term rehabilitation costs.

OPERATION AND MAINTENANCE

Indiana is a national leader in roadway asset management, having transitioned from reactive repairs to a data-driven, preservation-first strategy. By using the Community Crossings Matching Grant (CCMG) program to incentivize data collection, 99% of the local road network is now tracked in a centralized database. This inventory lets agencies track pavement life cycles and apply the right treatment at the right time on the right road, extending pavement life and protecting Indiana's long-term infrastructure investment even under constrained budgets. As of 2024, 100% of counties, 98% of cities, and 70% of town agencies have adopted pavement asset management plans.

An "operational tax" limits the funding available for construction and major preservation. About 27% ($285.4 million) of local dedicated funding is consumed by operating expenses, including administrative costs, facility and equipment maintenance, and winter operations such as snow removal. This aligns closely with INDOT's 24% operational and administrative overhead, creating a statewide challenge in which the high cost of sustaining aging infrastructure restricts the funds available for long-term construction and rehabilitation. On the local network alone, an additional $474 million is needed annually just to maintain current conditions over the next decade, rising to $1.9 billion to eliminate all poor or failed local roads. These figures primarily reflect construction costs and do not account for rising day-to-day operational needs. Snow and ice operations are shared across agencies, with local agencies maintaining about 89% of the state's centerline miles and INDOT operating more than 1,000 plows to keep state highways and interstates clear during winter events.

Workforce shortages are consistently identified as a primary barrier to advancing asset management and routine maintenance. About 60% of local agency drivers, operators, and maintenance workers are 50 or older, creating a looming loss of institutional knowledge. Recruitment is further hindered by pay disparity: local agency maintenance workers earn on average 22% ($9,519 annually) less than comparable state positions, making it increasingly difficult to staff crews for daily maintenance and emergency winter response. Together, these cost and workforce pressures point to a common gap: funding mechanisms have not kept pace with the rising cost of maintaining an aging system. Without a modernized approach to revenue, Indiana risks losing the progress achieved through its industry-leading asset management practices.

FUNDING

Roadway funding in Indiana draws on a combination of federal, state, and local sources. Federal funding administered by the Federal Highway Administration (FHWA) is distributed across programs including the National Highway Performance Program (NHPP), the Surface Transportation Block Grant (STBG) program, and the Highway Safety Improvement Program (HSIP). Recent federal legislation, the Infrastructure Investment and Jobs Act (IIJA), increased near-term funding, providing about $6.6 billion in surface transportation funds from FY2022 through FY2026. Even so, Indiana remains exposed to long-term uncertainty in the federal Highway Trust Fund, which is supported by motor-fuel user fees. The federal motor-fuel tax rate of 18.4 cents per gallon on gasoline and 24.4 cents on diesel has not been raised since 1993, and revenue has not kept pace with spending needs.

At the state level, the 2017 reforms enacted through House Enrolled Act 1002 created the Next Level Roads program, a five-year, $4.7 billion road maintenance and construction plan that raised the gasoline tax by 10 cents per gallon, increased special-fuel and motor-carrier surcharges, indexed future rates to inflation, and dedicated additional sales tax revenue to transportation. Indiana's state fuel tax now stands at 36 cents per gallon on gasoline and 61 cents on diesel, on top of the federal rate, and the reforms provided an additional $342 million per year for local roads once fully phased in by 2024. INDOT also receives revenue from the state's 7% sales tax on gasoline, a motor-carrier surcharge, and Bureau of Motor Vehicles fees. Motor fuel taxation is the backbone of state and local road funding, generating about 82% of that revenue, and Indiana's overall gasoline tax ranks fifth highest in the nation. That heavy reliance is a growing

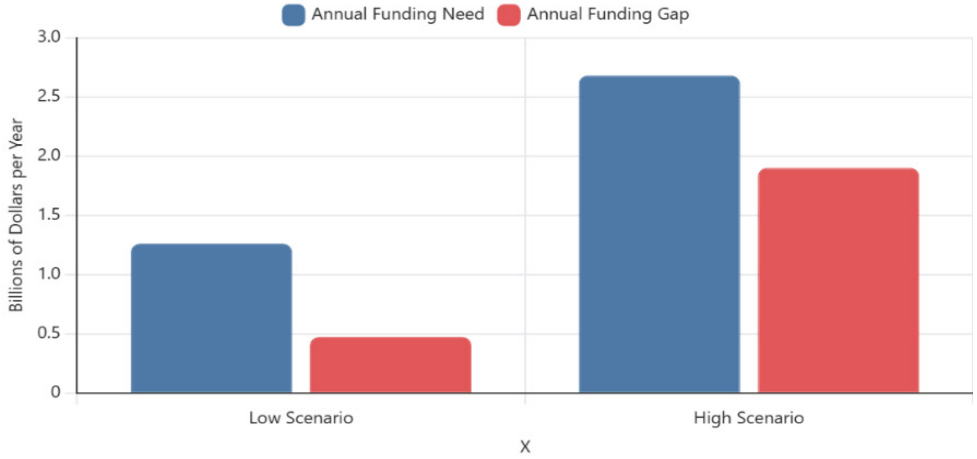
risk as vehicles become more fuel-efficient and electric vehicle (EV) adoption rises. Combined with material cost increases and declining fuel-tax purchasing power, these trends have contributed to significant funding challenges for INDOT, forcing the delay of more than 300 projects.

Tolling has emerged as one option to close the funding gap by harnessing Indiana's position as the Crossroads of America. House Enrolled Act 1461, signed into law in 2025, makes it easier to establish toll roads by allowing INDOT to seek a waiver from the FHWA to toll any highway in the state. INDOT has developed a strategic plan to study how a statewide interstate tolling program could be implemented if the state chooses to proceed, and it has submitted a waiver request to FHWA for permission to toll I-70.

Local road investment relies on local taxes, wheel and excise taxes, vehicle registration fees, and the Community Crossings Matching Grant (CCMG) program, which distributes state funds to cities, towns, and counties on a matching basis. Even with the IIJA increase and these state and local sources, substantial funding gaps remain.

FUTURE NEED

Figure 2. Indiana's local roadway funding gap.



Source: Indiana LTAP

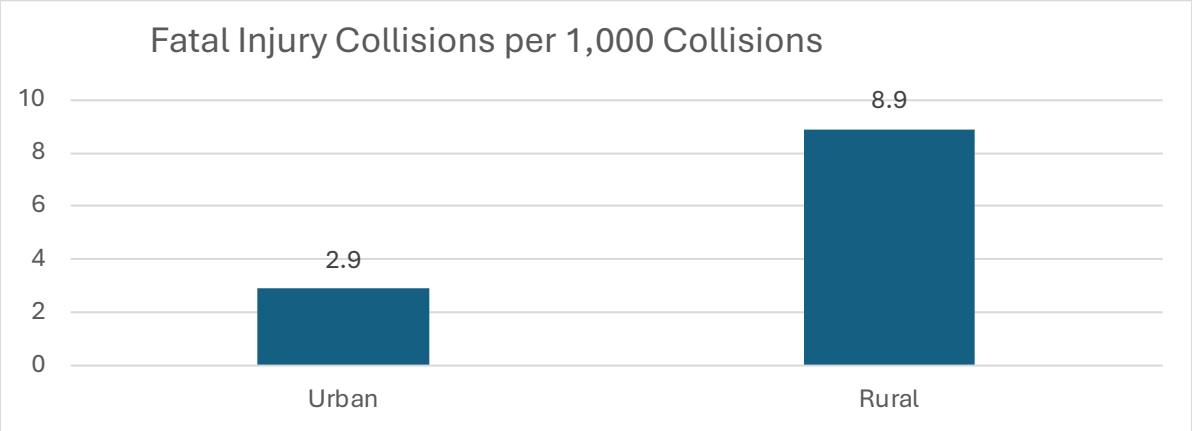
The most pressing future need for Indiana's roadway system is preservation of the existing network. Asset management data show a substantial share of local roads in poor or failed condition, and annual investment needs far exceed available funding. Preserving and improving the local road network is estimated to require $1.26 billion to $2.68 billion per year over the next ten years, an annual funding gap of $474 million to $1.9 billion. Additionally, Indiana's population is expected to reach 7.12 million by 2040, a 4.9% increase from 2020, adding further demand for reliable transportation infrastructure.

Future strategies must emphasize system performance, safety, freight reliability, and resilience rather than capacity expansion alone. As a freight-intensive crossroads state, Indiana is well positioned to evaluate usage-based funding, including mileage-based user fees and road usage charges, particularly for heavy vehicles that impose disproportionate pavement wear. The Congressional Budget Office has estimated that a per-mile tax applied to all commercial trucks on all roads would generate about $2.6 billion per year for each additional cent of tax. Indiana-specific revenue from such a tax is difficult to project, since I-80/I-90 in northern Indiana is the only interstate toll road in the state and offers limited comparable data. However, in September 2025, INDOT estimated that, if tolling is approved for I-70, toll revenue will fully fund the $6.5 billion reconstruction and widening of the corridor, financed by $3.3 billion of toll revenue bonds and $3.2 billion of toll collections during the eight-year construction period. Freight reliability is a core economic concern as Indianapolis (I-65/I-70) and Gary (I-65/I-80) both rank among the nation's Top 100 truck bottlenecks. Targeted interchange and operational improvements can yield significant benefits at lower cost than large-scale widening projects.

PUBLIC SAFETY

Traffic safety remains a critical concern in Indiana. From 2020 through 2025, 4,446 people died on Indiana's highways, an average of 889 annual fatalities. In 2024, 832 people were killed, a rate of 12.0 deaths per 100,000 population, slightly above the national rate of 11.5. Fatal collisions decreased 5%, from 914 in 2022 to 871 in 2023. Although most collisions occur in urban areas, crashes in rural areas are far more likely to be fatal. In 2023, the fatal collision rate on rural roads was roughly three times that of urban areas (8.9 versus 2.9 fatal collisions per 1,000 collisions). This gap reflects factors such as higher speeds, lower seat belt use, and longer emergency response times.

Figure 3. Rural roads see about three times the rate of fatal collisions as urban roads.



Source: Indiana Crash Facts, 2023

Distracted and impaired driving continue to elevate risk for all road users. In 2023, speeding was a factor in 7.4% of collisions, distracted driving in 5.2%, and impaired driving in 1.7%. Pedestrians and cyclists are especially vulnerable. Although they made up less than 1% of people involved in collisions, they accounted for 15% of all traffic fatalities. This disparity reflects vulnerability rather than frequency. Pedestrians and cyclists have no structural protection, and the risk is compounded by higher vehicle speeds and limited dedicated infrastructure such as sidewalks and protected bike lanes.

Indiana has adopted a Safe System Approach spanning engineering, enforcement, education, and data-driven evaluation. Statewide programs such as the Highway Safety Improvement Program and Vulnerable Road User assessments are reinforced by local action. In 2025, the City of Indianapolis adopted a Vision Zero Action Plan to eliminate traffic-related fatalities and serious injuries by 2035, and regional metropolitan planning organizations (MPOs) have developed safety toolkits for local communities alongside broader regional plans. At the state level, INDOT launched its Buckle Up Phone Down initiative in 2023, targeting a 25% reduction in roadway fatalities and incapacitating injuries within ten years and a 5% reduction in work zone incidents. Progress has been uneven across the campaign's two goals: Indiana's seat belt use reached 94.1% in 2025, above the national average of 91.2%, while distracted driving has remained persistent despite the 2020 Hands-Free Law. The recent downward trend in fatalities suggests these programs are beginning to take hold, though it is too early to credit any single program and continued work will be needed to reach their goals.

RESILIENCE AND INNOVATION

Indiana manages one of the largest road networks in the Midwest, roughly 203,045 lane-miles of federal-aid-eligible roadway and increasingly must manage it for a changing climate and for smarter, data-driven decisions rather than expansion alone.

Climate and precipitation trends are a growing factor in how the state maintains its roads. Indiana now receives between 38 and 46 inches of rain per year depending on region, 8% to 10% more than the 1951 to 1980 average, and researchers project spring rainfall will rise another 16% by the 2050s. That risk is no longer abstract: in August 2026 the White River crested at a record 24.6 feet in Hamilton County, surpassing the 1913 record and washing out roads across central Indiana.

Indiana is beginning to translate this risk into road-protection work. Through the Joint Transportation Research Program (JTRP), INDOT and Purdue have developed updated design guidance for culverts and drainage structures, aimed at reducing the scour and washouts that close roads during high-water events. The state is also moving from research into funded projects: in 2024, Fort Wayne received a $3.5 million federal PROTECT resilience grant to stabilize about 2,400 feet of the St. Marys River bank protecting Bluffton Road, a corridor carrying roughly 23,400 vehicles per day.

On the innovation side, Indiana's strongest advantage is JTRP itself, one of the oldest continuous state-university transportation research partnerships in the country. Its most consequential recent work applies connected-vehicle data to pavement management: a JTRP study analyzed more than 3 billion connected-vehicle roughness measurements between 2022 and 2025, raising usable pavement-condition data coverage on local paved roads from 46.5% to 53.2% in a single year and giving agencies near-real-time, low-cost data to target spending. JTRP research is also reshaping how Indiana weighs those investments, through lifecycle analysis that prioritizes long-term durability and maintenance cost over lowest initial price, and it is charting the state's path on emerging technology with a statewide roadmap for connected and automated vehicle infrastructure. It is this research pipeline that distinguishes Indiana's approach to road management.



Photo: Shelbyville, Indiana; Wirestock Creators



RECOMMENDATIONS TO RAISE THE GRADE

- Prioritize preservation of the existing roadway network through sustained, asset-management-driven investment to extend pavement life and reduce long-term costs.
- Strengthen long-term funding sustainability by diversifying revenue beyond fuel taxes, including mileage-based user fees and usage-based charges for heavy vehicles, to offset declining fuel-tax purchasing power and EV growth.
- Expand implementation of Safe System principles and proven low-cost safety countermeasures to reduce fatalities and serious injuries, particularly on rural roads.
- Incorporate resilience planning and climate-informed design into roadway asset management and project development to improve long-term roadway reliability.



Photo: Goshen, Indiana; Wirestock Creators



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Stormwater

D



GRADE COMPARISON

IN: D

Nat'l: D

Photo: A flooded field; zigmomen

STORMWATER

EXECUTIVE SUMMARY

Stormwater infrastructure in Indiana plays a critical role in protecting public safety, water quality, and community resilience by managing runoff from streets, neighborhoods, and developed land. Indiana's decentralized system includes 208 regulated Municipal Separate Storm Sewer System (MS4) communities, many of which rely on conveyance and storage systems designed for historical rainfall conditions. Statewide impacts are evident. There are approximately 62,746 stream and drainage miles across the state. Some 20,880 of 43,657 assessed stream miles, approximately 33%, are impaired, with stormwater runoff contributing to an estimated 40% of those impairments. Flood risks are also increasing, with ten Federal Emergency Management Agency (FEMA)-declared flood disasters taking place in Indiana in the past 20 years. Recent localized flooding and infrastructure failures highlight growing vulnerabilities across the state. Future pressures from urbanization, increasing impervious cover, and intensifying rainfall will continue to strain aging stormwater systems.

BACKGROUND

Indiana's stormwater infrastructure includes both gray infrastructure, such as storm sewers and inlets, and green infrastructure, such as rain gardens, permeable pavement, and green roofs, that manage runoff from developed areas. These systems play a critical role in reducing flooding, protecting water quality, and supporting the health of Indiana's rivers, streams, lakes, and groundwater resources. While many communities have implemented stormwater management programs and design standards, aging infrastructure, increasing rainfall, expanding impervious surfaces, loss of natural drainage features, and limited funding continue to challenge system performance and resilience statewide.

CAPACITY AND CONDITION

Indiana's stormwater infrastructure is aging, capacity-constrained, and increasingly reliant on targeted capital upgrades and green infrastructure to function acceptably under current and anticipated conditions. Indiana receives an annual average of 37 to 47 inches of precipitation, depending on the area of the state, with more rain occurring in the southern part of the state. The state's annual precipitation increased by 6.38 inches between 1895 and 2022, and is projected to increase by 6-8% by mid-century. Record breaking flooding in August 2026

resulted in at least seven deaths and is estimated to cost in the tens of millions of dollars, with numerous roads and structures washed-out, as shown in Photo 1.

Indiana's stormwater infrastructure operates across a decentralized landscape of 208 designated MS4 entities, regulated by the Indiana Department of Environmental Management (IDEM) under the federal Clean Water Act. The MS4 regulatory framework is primarily oriented toward stormwater quality management, emphasizing pollutant reduction, illicit discharge elimination, and postconstruction controls, rather than comprehensive conveyance capacity or flood mitigation. Most traditional public storm sewer systems are designed to convey frequent storm events efficiently rather than the largest possible storms. Designing systems to capture every storm event would require infrastructure that is prohibitively large and expensive and would remain underutilized most of the time. As a result, larger storms are expected to exceed pipe capacity, with excess runoff managed through surface drainage pathways such as streets, open spaces, and detention facilities. Green infrastructure and additional storage capacity can help reduce these risks and improve system resilience during more intense rainfall events.

Photo 1: A bridge on Hazel Dell Parkway, located in Carmel Indiana, built in 1997, was completely washed-out during record breaking flooding in August, 2026.



Source: WFYI

From a condition and performance standpoint, statewide water quality data reflects the limitations of existing stormwater infrastructure. Some 20,880 miles of Indiana streams, out of 63,511 assessed statewide, are classified as impaired under Category 5 of the Clean Water Act. Resources classified as impaired were identified through water quality testing to fail to meet water quality requirements set at the state level, which describe the conditions required for designation of a particular use, such as public water supply, warm water aquatic life, and full body contact recreation (swimming). Many of the dominant impairment causes, such as sediment, nutrients, pathogens (E. coli), and metals, are commonly associated with stormwater runoff from urban and developed landscapes. Based on the distribution of impairment causes and probable sources reported for Indiana, a reasonable inference is that approximately 35–45% of impaired stream miles involve stormwater as

a primary or significant contributing factor, recognizing that most impaired waters reflect multiple overlapping sources rather than exclusive causation.

Studies led by Indiana University and partner institutions frame green infrastructure and added storage capacity as necessary adaptations to relieve stress on traditional "gray" stormwater systems that are increasingly overburdened by extreme precipitation and urban growth. Similarly, Environmental Protection Agency (EPA)-documented capital projects in Indiana, such as large stormwater storage and conveyance upgrades, are typically justified as corrective investments addressing undersized or inadequate existing facilities, rather than discretionary enhancements. For example, Indianapolis has expanded green infrastructure through rain gardens, bioswales, and permeable pavement installations, while South Bend's smart sewer and storage investments have reduced combined sewer overflows and improved system performance during storm events. These investments demonstrate that adaptation strategies identified by researchers are increasingly translating into on-the-ground infrastructure improvements across Indiana.

FUNDING AND FUTURE NEED

Stormwater funding in Indiana relies primarily on local revenue sources, most commonly through dedicated stormwater utilities. Establishing a utility provides a stable and predictable funding stream for operations, maintenance, and capital improvements. Stormwater utilities typically generate revenue through user fees assessed on properties based on factors such as impervious area, land use classification, or an equivalent residential unit (ERU) methodology that reflects each property's contribution to runoff.

Single-family fees typically average approximately $6 per month, though fees vary depending on system size, impervious area, and adopted levels of service.

Local revenues are often supplemented by state and federal financing programs. The Clean Water State Revolving Fund provides low-interest loans for stormwater runoff mitigation and green infrastructure, though competition for funds is high and recent earmarking has constrained the amount available for state-directed priorities. For larger or multijurisdictional projects, the EPA's Water Infrastructure Finance and Innovation Act program can support stormwater and flood risk reduction investments by leveraging federal appropriations into significant lending capacity.

Municipal bonds are also an important financing tool for stormwater infrastructure in Indiana, particularly for large capital projects with long service lives, such as detention facilities, major conveyance improvements, and system rehabilitation. Communities with dedicated stormwater utilities may issue revenue bonds supported by user fees, while others may rely on general obligation bonds backed by broader tax bases. Bond financing allows project costs to be spread over time and aligned with the lifespan of infrastructure assets, though it depends on stable local revenue for repayment. Indiana already leverages municipal bonds extensively through the State Revolving Fund Loan Programs administered by the Indiana Finance Authority, which uses the bond market to expand low-cost financing for wastewater and stormwater projects statewide. Municipal Green Bonds have helped fund projects such as the Indianapolis Norwaldo Area Neighborhood Drainage Improvements project, which utilized Low Impact Development design, including pervious pavers and hybrid ditches, to help reduce localized street and yard flooding.

Photos 2 and 3: Installation of pervious pavers (left) and final constructed pervious pavers (right) – Norwaldo Area Neighborhood Drainage Improvements project – HNTB Corporation





FEMA's Building Resilient Infrastructure and Communities and Flood Mitigation Assistance Grant programs have also become increasingly important sources of stormwater funding. Recent funding cycles have prioritized flood risk reduction and nature-based projects, aligning well with detention, floodplain restoration, and conveyance upgrades. While funding opportunities have expanded, the administrative burden associated with competitive grants remains a barrier for smaller communities.

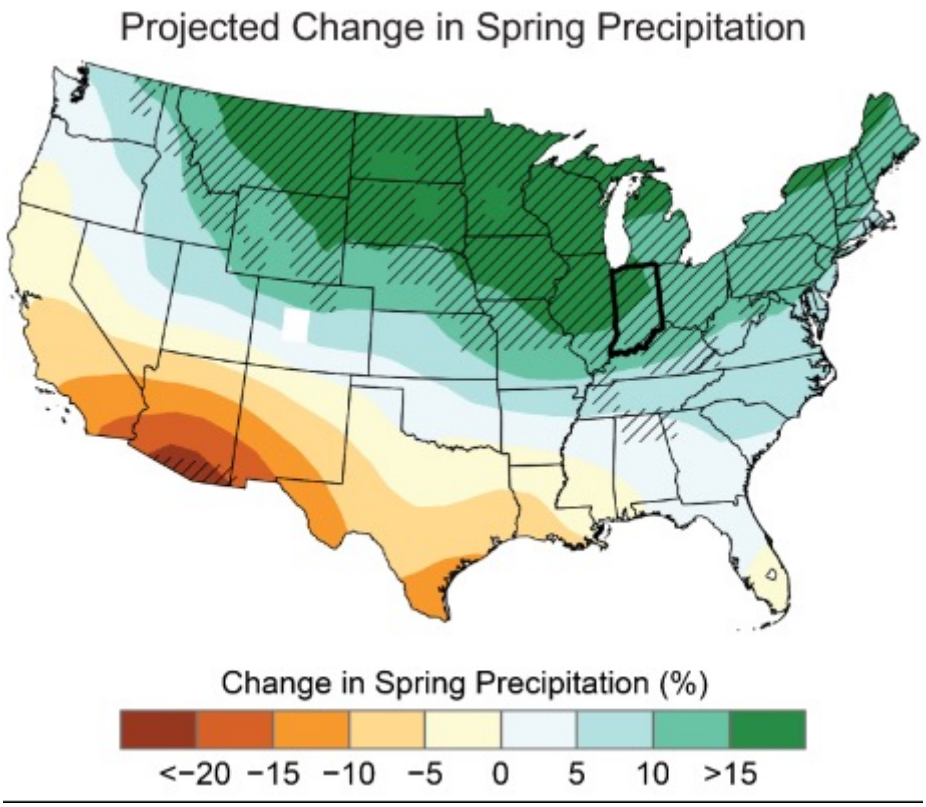
Indiana's regulatory framework influences stormwater program costs but does not provide new revenue. The state's transition to Master General Permits in 2021 modernized permit administration, and House Enrolled Act 1037 (2025) limited local construction stormwater requirements from exceeding the standards contained in IDEM's Construction Stormwater General Permit, reducing local authority to impose more stringent erosion control, post-construction stormwater management, and related development requirements. These changes reinforce the importance of a dedicated local funding mechanism.

While recent federal investments have improved access to capital, long-term funding for stormwater infrastructure remains insufficient to meet documented needs. Closing this gap will require sustained local revenue, strategic use of state and federal programs, and planning approaches that reflect future rainfall conditions.

Stormwater infrastructure needs in Indiana are expected to grow significantly in the coming decades. Urbanization, redevelopment, and increased impervious cover continue to elevate runoff volumes, while higher intensity rainfall increases flooding and water quality risks. The EPA's Clean Watersheds Needs Survey is a national inventory of documented, currently unfunded clean water infrastructure projects needed over the next 20 years. Indiana-specific data from the Clean Watersheds Needs Survey dashboard indicates a substantial gap between the identified need of $531 million and available funding. Although an exact funding deficit dollar value for stormwater alone is not readily available, the Indiana Finance Authority lists a multi-billion dollar deficit when it combines stormwater and wastewater.

Design standards further complicate future planning. While National Oceanic and Atmospheric Administration (NOAA) Atlas 14 remains the historical basis for design, climate projections suggest that future precipitation intensity may exceed those assumptions. Integrating projection-informed rainfall into capital planning can help right-size infrastructure, reduce long-term costs, and strengthen applications for federal mitigation funding.

Photo 4: Spring precipitation in Indiana is projected to increase by up to 15% by 2050 – NCIS, CISESS, and NEMAC.



OPERATION AND MAINTENANCE

Stormwater operations and maintenance (O&M) in Indiana has evolved significantly as communities respond to regulatory requirements, aging infrastructure, and increasing hydrologic variability. Indiana's MS4 program, administered by IDEM, establishes the framework for local stormwater management through six minimum control measures. The Six Minimum Control Measures for local stormwater management in Indiana under IDEM Rule 13 (327 IAC 15-13) are as follows:

- **Public Participation and Involvement:** Providing opportunities for citizens to engage in project planning, stream cleanups, or public meetings.
- **Illicit Discharge Detection and Elimination (IDDE):** Developing and enforcing a plan to detect, track, and eliminate unauthorized or illegal non-stormwater discharges into the storm sewer system.
- **Construction Site Stormwater Runoff Control:** Requiring erosion and sediment control practices on construction sites that disturb one or more acres of land.
- Post-Construction Stormwater Management: Managing long-term runoff from new development and redevelopment projects using green infrastructure or structural controls.
- **Pollution Prevention and Good Housekeeping in Municipal Operations:** Implementing internal maintenance and operational procedures (such as street sweeping and proper material storage) to minimize pollutant runoff from municipal facilities.

Within this framework, O&M plays a central role in ensuring that stormwater infrastructure performs as designed, protects receiving waters, and supports long-term community resilience.

Construction Phase Requirements (Construction Stormwater General Permit)

- **Frequency:** Inspect all erosion and sediment control Best Management Practices (BMPs) at least once every seven (7) days, and within 24 hours of a measurable rain event (typically 0.5 inches or greater).
- **Personnel:** Inspections must be performed by a trained individual familiar with erosion and sediment control.
- **Corrective Actions:** Damaged controls or accumulated sediment must be repaired or cleaned within 7 days of discovery.
- **Record Keeping:** Maintain inspection logs, maintenance records, and Stormwater Pollution Prevention Plans (SWPPP) on-site or accessible for review.

Post-Construction Phase Requirements (Permanent BMPs)

- **Routine Inspections:** Property owners of permanent structural features (e.g., detention ponds, bio-swales, rain gardens) must perform annual self-inspections and maintenance.
- **Major Checks:** Comprehensive third-party or specialized engineering inspections are often mandated every five (5) years by local ordinances.
- **Debris & Clearing:** Inlets, outlets, grates, and culverts must be kept clear of trash, sediment, and woody debris semi-annually or after significant storm events.
- **Sediment Deposition**: Wet and dry detention ponds require clearing of accumulated sediment when storage capacity decreases by a threshold percentage (commonly 35% or more compared to design specifications).

To support effective stormwater operations and maintenance, Indiana communities implement a range of routine activities tailored to different asset types and site conditions. These activities are guided by regulatory requirements, best practices, and observed performance issues, and they vary in frequency and cost depending on infrastructure function and exposure. The following tables summarize typical O&M activities, recommended inspection intervals, and representative cost ranges for common stormwater assets across the state.

Table 1. Typical O&M Activities for Indiana Stormwater Infrastructure

Infrastructure Type	Common Issues	Required O&M Activities
Pipes & Culverts	Sediment buildup, joint separation, freeze–thaw cracking	CCTV inspections, sediment removal, structural repairs
Open Channels	Erosion, vegetation overgrowth	Mowing, regrading, riprap repair
Bioretention Cells	Clogging, invasive species	Mulch replacement, plant maintenance, sediment removal
Permeable Pavement	Joint clogging	Vacuum sweeping, joint material replacement
Detention/Retention Basins	Outlet clogging, embankment erosion	Mowing, outlet cleaning, invasive species control
Hydrodynamic Separators	Sediment accumulation	Scheduled cleanouts, cartridge replacement

Table 2. Recommended Inspection Frequencies for Stormwater Infrastructure

Asset Type	Routine Inspection Frequency	Post-Storm Inspection
Pipes & Culverts	Annually	After ≥1.0 in rainfall
Catch Basins & Inlets	2–4 times/year	After major storms
Open Channels	Quarterly	After ≥1.5 in rainfall
Detention Basins	Semi-annually	After major storms
Bioretention Cells	Monthly (growing season)	After ≥0.75 in rainfall

Table 3. Annual O&M Cost Ranges for Common Stormwater Assets

Asset Type	Typical Annual O&M Cost	Cost Drivers
Catch Basin (EA)	$75–$200	Sediment load, traffic area
Storm Sewer Pipe (LF)	$1–$4	Age, material
Detention Basin (EA)	$1,500–$5,000	Mowing, outlet cleaning
Bioretention Cell (EA)	$1,200–$4,000	Plant replacement, mulch
Permeable Pavement (acre)	$3,000–$8,000	Vacuum sweeping

Effective operations and maintenance are essential to the long-term performance of Indiana's stormwater systems. While MS4 requirements and local practices have improved consistency in inspections and routine maintenance, many communities continue to face challenges related to aging infrastructure, limited funding, workforce capacity, and increasing storm intensity. Sustained investment in preventive maintenance, asset management, and staffing is necessary to preserve system functionality, protect water quality, and ensure that existing and future stormwater infrastructure delivers its intended benefits over time.

Table 4: Total Estimate Indiana Stormwater Workforce

Sector	Estimated FTEs
Municipal MS4s	450-1,000
State agencies	100-250
Consulting firms	1,000-2,000
Contractors	1,500-3,000
Utilities & districts	250-500
TOTAL	3,300-6,750

Table 5: Typical Training

Workforce Segment	Typical Training
Municipal MS4 staff	MS4 permit compliance, IDDE, BMP O&M, good housekeeping
Consultants	MS4 compliance, drainage design, green infrastructure, post-construction BMPs
Contractors	Erosion & sediment control, SWPPP implementation, inspections
INDOT personnel	Storm Water Quality Management Training, construction compliance

PUBLIC SAFETY

Over the last 20 years there have been at least ten FEMA-declared flood disasters involving significant flooding impacts in Indiana, underscoring the state's growing vulnerability to high precipitation events. In the 2018 disaster alone, FEMA allocated more than $14 million to address damage to public infrastructure. As of October 7, FEMA has paid or allocated $134.4 million in individual assistance to over 32,300 applicants for the August 2026 flooding disaster. Yet many stormwater and flood-related impacts never rise to the level of a federal declaration, despite posing significant risks to public safety and community resilience. For example, in February 2025, the collapse of a historic brick sewer in Evansville created a 20-foot by 25-foot sinkhole, large enough to swallow several passenger vehicles, and forced the closure of a major roadway for thirteen months. More recently, hundreds of homes in northwest Indiana were inundated during intense storms in August 2025.

Photo 5: Sinkhole on Riverside Drive in Evansville, Indiana



Source: WNIN

As communities confront these challenges, the careful evaluation of stormwater infrastructure capacity and design standards becomes increasingly essential. As stormwater systems age and rainfall intensities increase, maintaining adequate system performance becomes not only an infrastructure concern but also a public-safety priority, protecting communities from flooding, transportation disruptions, and infrastructure failures. A key resource supporting this work is NOAA's precipitation frequency atlas series. The forthcoming Atlas 15, scheduled for release in 2027, will build upon the widely used Atlas 14, which currently informs floodplain assessments, sewer sizing, best management practice design, and stormwater conveyance estimates. The next iteration will incorporate extreme weather more comprehensively and provide precipitation frequency estimates for Indiana, integrating temporal trends from historical observations alongside projections from future climate models. This expanded dataset will offer engineers and planners more reliable information for designing and maintaining critical infrastructure, including the state's stormwater systems.

These strategies underscore the need for a more resilient and forward-thinking approach to stormwater management. As rainfall intensities increase, development expands into vulnerable areas, and natural infiltration capacity continues to decline, the risks to buildings, transportation networks, and public safety will only grow. The release of NOAA Atlas 15 will equip engineers and planners with more reliable precipitation frequency information, enabling designs that better reflect emerging climate realities. At the same time, expanding regional storage, preserving natural storage areas, and restoring native vegetation can meaningfully reduce flood depths and peak runoff. Investments in repairing or replacing aging stormwater systems further strengthen system reliability, while updated ordinances and design standards help limit runoff and protect

adjacent properties. Together, these actions form a comprehensive pathway for communities seeking to reduce flood risk, safeguard water quality, and build infrastructure capable of meeting the challenges of a changing environment.

RESILIENCE

Resilience necessitates stormwater systems to protect with minimum consequences to public safety and health, the economy, and national security against multi-hazard threats and incidents. Flooding is a major hazard in Indiana, as 24% of the state is covered by wetlands. Conditions such as increasing intensity and frequency of rain, rapid snowmelt, and frozen ground increase riverine and flash flooding risks.

The Indiana Department of Natural Resources (DNR) provides a Model Ordinance for Flood Hazard Areas to help communities develop an ordinance that will comply with the criteria of the National Flood Insurance Program (NFIP). In Indiana, there are approximately 390 cities, towns, and counties that voluntarily participate in the NFIP. As such, Indiana counties and cities (i.e., City of Cicero, Clark County, City of Greensburg, Franklin County) developed ordinances for the control of stormwater and the design, construction, and maintenance of stormwater drainage facilities and systems. However, only a few county communities participate in the Community Rating System (CRS), a FEMA-led voluntary incentive program that encourages communities to go beyond the minimum requirements of NFIP. An example of Indiana communities that adopted resilience-related plans and policies considering stormwater management include Cumberland, Hancock County, Indianapolis, Carmel, Westfield, Whitestown, Zionsville, Fishers, Hamilton County, Hendrics County, Marion County, Johnson County, Ohio County, Monroe County, and Greenwood.

Indiana counties propose increasing infiltration and detention of stormwater. Green stormwater infrastructure (rain gardens, green roofs, roof gardens, grassy swales, etc.) are implemented or included in cities' incentives such as Indianapolis, Bloomington, and Gary. These systems keep rainwater out of the sewer system, thus preventing sewer overflows and reducing the amount of untreated runoff discharged to surface waters. Nevertheless, their implementation remains challenging due to barriers such as inconsistent funding, workforce shortages, and fragmented planning.

The Indiana Department of Transportation (INDOT) has updated various construction standards, and counties have programs for preventing stormwater pollution from construction sites. Cities such as Greenwood participate in FEMA's Hazard Mitigation Grant Program, which provides funds to purchase certain properties located in a floodway to reduce the risk of flood damage.

INNOVATION

Stream gauges are utilized to monitor surface water elevations and/or discharges at key locations and time periods equipped with the National Weather Service's National Water Prediction Service capabilities. These gauges have the potential to provide valuable information regarding historical high and low water stages, hydrographs representing current and forecasted stages, and a map of the surrounding areas likely to be flooded.

DigIndy is a 28-mile tunnel system of 18-foot diameter tunnels built 250 feet beneath the city in deep rock. Along with other projects in the combined sewer system the $2 billion program is Indianapolis's solution to reducing combined sewer overflows into area waterways, such as major tourist and residential amenities such as the White River and the Eagle Creek Park, and keeping the utility and the city in compliance with EPA regulations. Now more than a decade in the making, completed portions of DigIndy have prevented five billion gallons of sewage from entering local waterways.

Photo 6: The Deep Rock Tunnel Connector was the first tunnel constructed in the DigIndy program



Source: WFYI

Counties and cities such as Lafayette are using green infrastructure (e.g., rain gardens, permeable pavers, and porous asphalt) to reduce stormwater. They also use Geographic Information System (GIS) information and processes to map critical infrastructure to flooding zones. Such initiatives need to be expanded across Indiana. Moreover, other improvements are needed, such as technologies that increase warning times and apps for community outreach during disasters. Indiana could explore the use of blue roofs (specially engineered roofing systems designed to temporarily store rainwater during heavy storms), floating treatment wetlands (utilization of natural wetland processes to remove pollutants from water), district-scale stormwater reuse (reclaiming water from a variety of sources, treating it, and reusing it for agricultural irrigation, potable water supplies, etc.), and managed aquifer recharge using stormwater (improving and supplementing subsurface freshwater storage).



RECOMMENDATIONS TO RAISE THE GRADE

To improve the performance and long-term sustainability of stormwater infrastructure, decisionmakers should focus on the following priorities:

Close the Funding Gap

- Scale grant funding to better align with the documented $30.2B stormwater need, particularly for disadvantaged and high-risk communities.
- Preserve and expand dedicated revenues for resilience and water quality programs.

Mandate Asset Management

- Require comprehensive inventories, condition assessments, and lifecycle cost planning for stormwater assets, similar to drinking water and wastewater systems.

Modernize Design Standards

- Accelerate adoption of updated rainfall data (e.g., NOAA Atlas 15) and require climate adjusted design criteria for all publicly funded projects.

Prioritize Risk Based Investment

- Direct funding to projects that measurably reduce flood risk, CSO frequency, and pollutant loads, not just regulatory minimums.

Integrate Stormwater into Resilience Planning

- Treat stormwater systems as critical infrastructure for public safety, transportation continuity, and economic stability.



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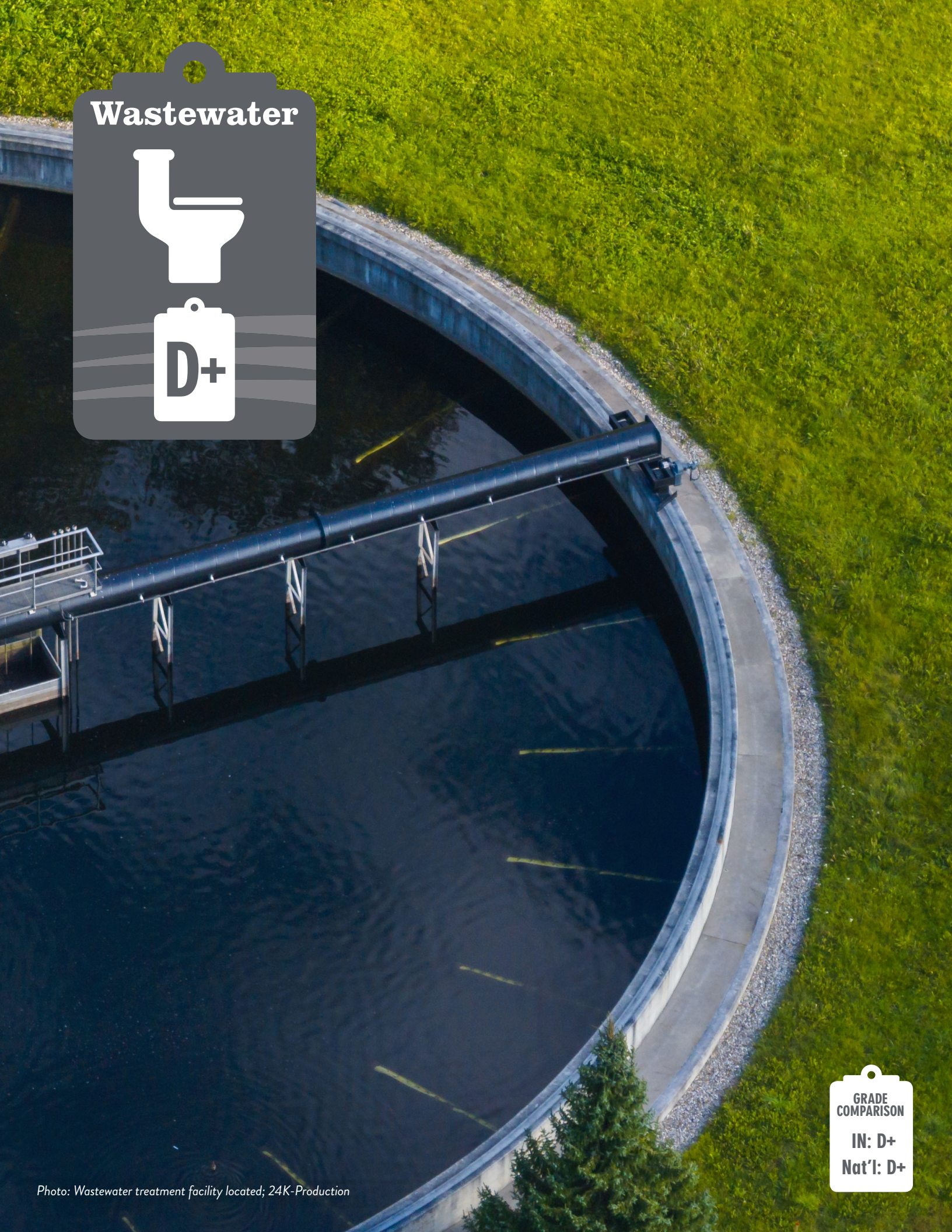


Photo: Wastewater treatment facility located; 24K-Production

WASTEWATER

EXECUTIVE SUMMARY

Indiana's wastewater treatment systems are operational but have a significant amount of investment needed. Local communities are tasked with funding, operating, and improving their municipal wastewater treatment plants while also addressing combined sewer overflows or failing septic systems around them. Even with the incoming asset management plans through HEA 1459, the EPA estimated the State needing over $10 billion in wastewater-related funds to address infrastructure improvements in 2022. Communities requested over $2 billion from the State's revolving fund in 2024 with only $300 million being awarded. The State continues to help communities improve their wastewater systems – especially on the CSO front, but more help is needed for Indiana's infrastructure as its population continues to grow.

BACKGROUND

Indiana's wastewater treatment systems are managed at the community level and vary in their size and in their accountability requirements. The Indiana Department of Environmental Management (IDEM) administers and oversees the National Pollutant Discharge Elimination System (NPDES) permits that are required for municipal wastewater treatment plants (WWTPs). About two-thirds of the state's residents (over 4 million people) are dependent on municipal sewer systems to treat their wastewater; some wastewater treatment plants (WWTPs) serve over 40,000 people while others serve less than 2,000. The other one third of residents are not dependent on the IDEM-supervised municipal wastewater infrastructure because they utilize privately-owned septic systems for their sewage treatment. The approval and installation of septic systems is overseen by county health departments. Both municipal and septic systems serve as the main wastewater treatment infrastructure for Indiana, and both will be evaluated in this report.

CONDITION AND CAPACITY

The most important issues regarding the condition of Indiana's wastewater infrastructure revolve around three broad categories: improving existing infrastructure, reducing combined sewer overflows (CSOs), and ensuring adequate treatment for all parts of the state. Improving existing infrastructure includes rehabilitation, replacement, and expansion projects for existing WWTPs and collection systems. Reducing combined sewer overflows helps minimize the number of sewers that spill both gray wastewater and storm runoff into a river or stream. Ensuring adequate treatment for all parts of the state focuses on providing better wastewater treatment

options to areas that have poor sanitary infrastructure access. Most of the projects that requested funding through the Indiana Finance Authority's State Revolving Fund (SRF) in 2024 aimed to address one of these concerns. The 2022 EPA Clean Water Needs Survey (CWNS) also displayed a similar trend for Indiana.

Both the 2022 EPA CWNS and the 2016 Indiana Advisory Committee on Intergovernmental Relations' (IACIR) water and wastewater financial needs assessment indicate that Indiana's municipal wastewater systems (including lift stations, sewer pipes, clarifiers, aerators, etc.) need over $3 billion in work to improve their existing conditions. The 2024 Clean Water SRF further emphasized this need by allocating over 50% of its funds towards treatment and sewer rehabilitation projects such as inflow and infiltration reduction, UV and aeration system installations, and lift station replacements – among many others. Although the financial need across the state is clearly documented, overall trends regarding Indiana's WWTP and sewer pipe ages have limited public data. The State government noticed the need to further document the overall condition of Indiana's existing wastewater infrastructure and acted in 2025 by passing and enacting HEA 1459. This new law requires water and wastewater utilities to develop and maintain an asset management plan (AMP), per the Indiana Utility Regulatory Commission's guidelines. According to the Rural Water Alliance of Indiana, the Asset Management Plan will help utilities evaluate and document their infrastructure's condition and plan for how they will maintain their infrastructure. The new program is still in its infancy, but it should provide valuable data about the ages and capacities of Indiana's wastewater infrastructure soon.

One of the other main concerns for Indiana's wastewater infrastructure is eliminating CSOs. The 2022 CWNS reinforced this point by ranking Indiana as one of the top five states needing CSO-specific improvements. IDEM estimates that the State's combined sewer networks discharged over ten billion gallons of sewage into waterways in 2024 and that there are over 650 active CSO's in the State today. IDEM and the local wastewater treatment entities are working together to minimize CSO impacts by executing Long Term Control Plans (LTCPs) specific to each combined sewer system. Fortunately, Indiana has excelled at developing LTCPs with over half of the CSO communities (69 of 110) currently utilizing their plans to mitigate wastewater entering the State's surface water.

Indiana's wastewater needs expand beyond the public infrastructure and into the private sector with septic systems being another key focus. In a 2019 IACIR report that referenced the 2016 financial assessment, the commission estimated that over four hundred communities (or around 58,000 private homes) were considered "unsewered" or completely dependent on septic systems. Within this subset, 192 communities had over a quarter of their private sanitary systems failing (11,000 total). This poses a health risk for these areas because there are no other sanitary treatment options readily available. SRF-funded projects helped alleviate over 1,500 poor septic systems in 2024 alone, but there are still more areas that lack adequate sanitary infrastructure or septic system records.

The state's population is projected to exceed seven million people by 2030, according to the Indiana Public Data Utility (STATS). Population growth paired with SRF's initiatives to improve existing infrastructure by providing better access for people with failing septic systems, building new sewers, and even mitigating inflow and infiltration shows that Indiana's need for wastewater treatment is not decreasing anytime soon. The 2024 CWSRF displayed this by giving 12% of its funding towards new public sewage piping. The Indiana Chamber of Commerce conducted a water study in 2024 that suggested wastewater treatment plants investigate more advanced treatment methods that will allow wastewater to be reused instead of simply discharged into a river or stream.

One factor particularly affecting older treatment plants is Infiltration and Inflow (I&I) in the collection system of sewers. Several older plants across Indiana have stated that this is a major issue. The East Chicago plant operator estimated that about 20% of the capacity usage comes from I&I.

OPERATION AND MAINTENANCE:

In the state of Indiana, the operation and maintenance of most WWTP's is performed by the local municipality. Some large plants are operated by either a charitable public trust (Indianapolis) or sometimes by a for-profit company such as Aqua Indiana (Ft Wayne).

In addition to affecting system condition, I&I is a major factor in maintenance considerations. All plant operators stated that their municipalities have invested heavily into sewer lining as a means to mitigate I&I. Another way municipalities are mitigating I&I, along with costly reactionary sewer repairs, is to perform camera sewer inspections continually throughout their systems.

All plants reviewed stated that they use asset management plans. When requesting SRF funding, asset management plans are requested. All operators have stated that there have been many improvements made to their plants and these improvements have helped maintain the equipment. Maintenance of the sewer systems remains an ongoing concern.

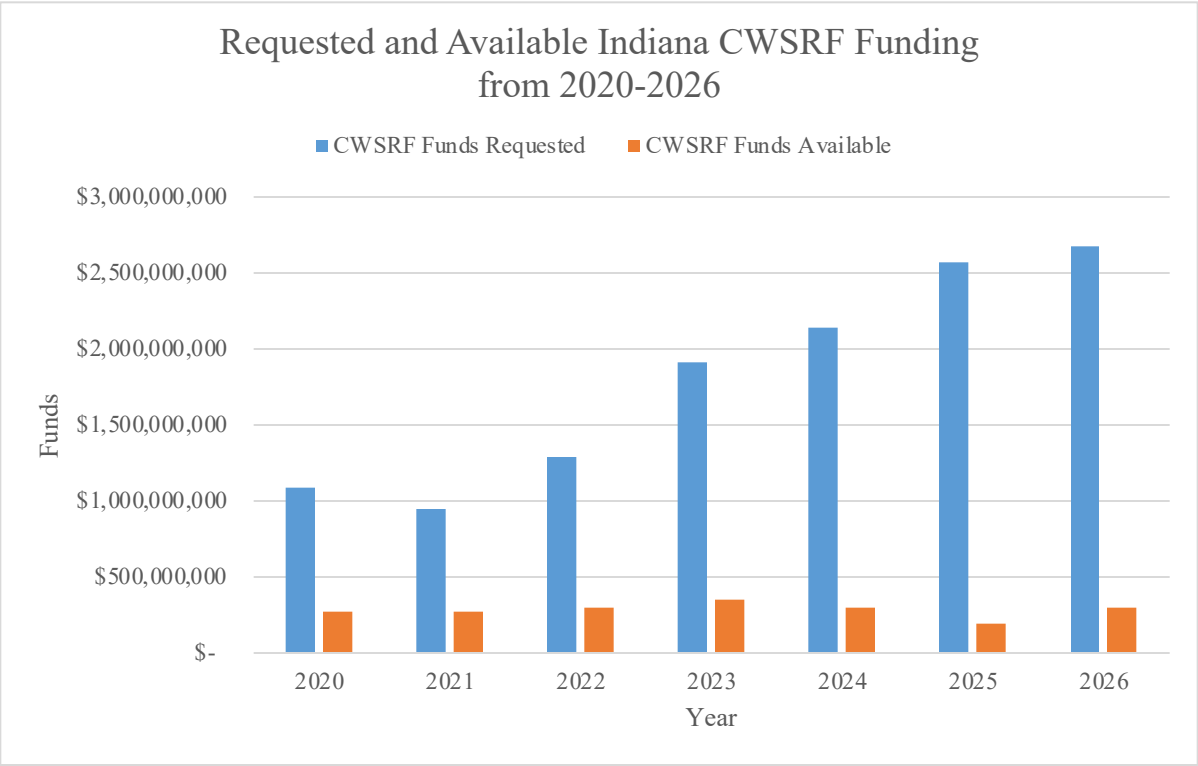
The running of WWTPs requires proper equipment and proper personnel. Most plants have an adequate number of employees. However, many operators state that their workforce is aging and many of the personnel have been employed for 20 -30 years. Plants require a certified wastewater operator and continued training/education is required to keep licensure. All employees receive some type of training and training is typically ongoing, though most of the equipment has been in operation for quite a while.

FUNDING AND FUTURE NEED

Indiana's funding needs revolve around improving existing infrastructure, reducing CSOs, and improving treatment in communities with failing septic systems. The 2016 IACIR financial assessment found that the funds necessary to improve existing wastewater infrastructure, eliminate CSOs, and provide adequate treatment to areas with septic systems exceeded billions of dollars. This trend is still evident in more recent studies – including the 2022 CWNS that noted Indiana's total wastewater needs being around $10 billion. Communities across the state requested over $2 billion in funding from the CWSRF in 2024 alone showing that Indiana has an evident financial need regarding its wastewater infrastructure. This is a crucial aspect in understanding its grade. The financial resources available to communities are also very important when considering how the state is preparing for the future.

Indiana provides several financing opportunities for communities looking to improve their wastewater infrastructure, but the funding available is far less than the funding needed. One of the clearest examples of this can be found in the 2024 CWSRF where only $300 million of funding was available despite over $2 billion being requested. Despite the Indiana Finance Authority receiving funds from the federal government through the IIJA on multiple occasions (specifically in October and November 2024), SRF does not have the capability to fund half of the projects that communities request. Figure 1 compares the requested and available CWSRF dollars in graph form to further display the funding gap. CWSRF's discrepancy between funded projects and requested projects is a key concern for the state, but it is not the only funding source available for communities.

Figure 1: Comparing CWSRF requested and available funds from 2020 to 2026.



Source: Indiana Finance Authority: IUPs, Reports and PPLs

Other important funding sources for Indiana wastewater utilities include programs through the Office of Community and Rural Affairs (OCRA) and the U.S. Department of Agriculture (USDA). OCRA announced in March 2026 that it will be funding over $8.5 million of water and wastewater projects throughout the Indiana – significantly assisting rural communities. The USDA's rural development arm has both grant and revolving fund resources that communities can also utilize. Although both funding sources and CWSRF benefit the state, Indiana's future regarding wastewater infrastructure funding cannot be overlooked. The 2016 IACIR financial assessment forecasted Indiana needing over $8 billion in wastewater investment from 2015 to 2034. With the reality that utilities are making large investments in projects across the state, the local wastewater rates may be impacted, according to a 2025 Baker-Tilly rate study. According to the study, Indiana rates have increased by over 14% from December 2021 to December 2024. More specifically, the average cost for 4,000 gallons increased from $44.36 to $50.77 during this three-year window.

PUBLIC SAFETY

One very important aspect of wastewater treatment is to protect public safety & health. Cholera is an infection of the small intestine by some strains of the bacterium (Vibrio cholerae). Approximately 2.5 to 3 million people died of cholera since 1800. Cholera can be spread through unsafe drinking water, normally due to poor sanitary waste treatment. Modern WWTP's sanitize and disinfect the treated water, thus eliminating Cholera bacteria from discharge that goes into our possible drinking sources.

A CSO can cause the release of untreated water into public water supplies. According to all WWTP operators interviewed, the number of CSO's is trending downward. IDEM has created a map of CSO's for the

state of Indiana. Many municipalities have been required to reduce the number of CSO's by consent decrees issued by IDEM. All plants interviewed have within the last five years installed various systems to reduce CSOs such as new temporary storage ponds, upsized pumps or increased temporary storage volumes. A few examples of some larger projects are:

- Indianapolis creating $2 billion tunnel storage system
- Ft Wayne creating $500 million pump station and tunnel system
- Evansville spending about 500 million dollars on expansions and CSO's mitigation.

These improvements are necessary, especially considering more frequent extreme weather producing higher rain intensities.

Water testing is performed at all plants. Testing can include polychlorinated biphenyls (PCBs) and heavy metals. In some instances, human diseases are tested such as COVID with the results being sent to the Indiana State Board of Health.

RESILIENCE AND INNOVATION

Changing weather patterns with more frequent and severe rainfall intensities is a concern. According to Purdue Agriculture climate report from 2018, Indiana has seen a 5.6" increase in average rainfall since 1895. To deal with the increase in population density along with more rainfall intensities, Indiana WWTP's are taking measures to increase capacity, update pumps, or increase temporary storage capacities. Some plants have brought in second electrical feeds to reduce the chance of power failure, though plants maintain backup generators to power critical equipment. Most municipalities continue to separate sewers as funding allows. By updating equipment, building more temp storage of rainwater and separating combined sewers, the resilience of Indiana WWTP's is increasing. Two recent examples of adding resilience to existing systems are Hammond creating a separate electrical feed into the plant for redundancy, and Crown Point updating its backup generation power.

Plants are also continuing to innovate. Most plants have moved away from gaseous chlorine towards the use of UV disinfection, distributing the biosolids that are created to farmers and increasing reporting on phosphorus removals.



Photo: Scientist in yellow protective suit conducts water quality test in dirty sewer tunnel. Environmentalist working on pollution control and wastewater management; APChanel



RECOMMENDATIONS TO RAISE THE GRADE

- *Identify rural areas with failing septic systems and plan how to deliver adequate sanitary infrastructure to them* – IACIR's 2019 report on wastewater infrastructure highlighted that there are 192 communities without a public sewer system that had more than ¼ of their septic system failing. Although noticeable work has been done to reduce this number (e.g., 1,500 septic repairs through CWSRF in 2024), the State should re-evaluate its need for improved sewer systems in areas currently unreached by public sewers and put considerable funding toward ensuring adequate access.
- *Allocate additional funding towards CSO communities' efforts to minimize sewage disposed in waterways* – The State should work to eliminate combined sewer systems so that the ten billion gallons of wastewater discharged into rivers and streams is eventually reduced to zero. The problem and solution for this topic is similar to lead service lines: CSO's (like lead service lines) were common in the past, undesirable in the present, and can be taken away as the State moves towards the future.
- *Increase separation of sewers (or more storage) and limiting I&I* - The state should continue to fund sewer separation projects or storage projects, along with Infiltration and Inflow correction projects. These issues result in increased treatment requirements and increased COS potential.
- *Utilize the new asset management plan program to collect valuable data and identify statewide trends regarding wastewater treatment infrastructure* – If implemented well, the asset management plan program stemming from HEA 1459 (of 2025) will allow the State to better process the overall condition and capacity of wastewater treatment plants across Indiana. Taking intentional steps towards establishing an efficient and robust program is critical in these first few years of its implantation.



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