



# City of Goshen

# 2022 Stormwater Report



## Partnerships for Clean Water

In Goshen, the Stormwater Department has a unique perspective of the city. As part of a watershed that stretches from Hillsdale, MI, to Lake Michigan, and winding through Indiana on its way, Goshen contributes to the St. Joseph River Watershed that drains over 4,600 square miles of water. Our work stretches across political boundaries as we partner with other political entities, states, and non-profits.

Across the United States, Stormwater Departments are working to improve water quality and preserve natural resources beneficial to humans and other organisms. In Goshen, our goals would not be met if it wasn't for the diligence of our partners. Communities upstream of Goshen directly contribute to our water quality as do our actions impact the water quality of downstream communities.

The Greater Elkhart County Stormwater Partnership contains multiple municipal separate storm sewer system permit holders: Elkhart County, the City of Goshen, the City of Elkhart, and the Town of Bristol. Year-to-year we share resources to educate the public on water stewardship, complete inspection duties, and even conduct water quality monitoring.

This report highlights some of the collaborative efforts we have been a part of in 2022. This includes our Stormwater Partnership efforts, our work with the St. Joseph River Basin Commission, the Elkhart County Soil and Water Conservation District, the Elkhart River Restoration Association, Christopher B. Burke Engineering, and Baker Tilly, US LLP.

The partnerships reflect the small- and large-scale watersheds we find ourselves a part of here in Goshen. Smaller tributary watersheds, like Rock Run Creek and Horn Ditch, begin in the surrounding County. The Elkhart River runs through the heart of Goshen, making us a part of the Elkhart River Watershed, the St. Joseph River Watershed, the Great Lakes Watershed, the North Atlantic Watershed, and ultimately, the interconnected watershed that is planet Earth.

A huge thank you to all our partners for making 2022 a great year. Cheers to the year ahead!!

Jason Kauffman,  
Stormwater Coordinator

Boston Snyder,  
Stormwater Specialist



# State of the River

## Biologic Health



The Goshen Stormwater Department contracts with the City of Elkhart's aquatic biologist, Daragh Deegan, and his summer stream monitoring team to conduct education events with Goshen area students and residents. Students learn about how biological monitoring of our aquatic organisms gives insight into the overall health of our streams and rivers.

Older students help conduct fish surveys, which screen for species variety and abundance in the Elkhart River. Like with smaller aquatic organisms used for monitoring, certain fish species are more or less sensitive to water pollutants, so their presence and absence can serve as a water quality litmus test.

This year, Deegan's team and area students sampled both in Goshen's dam pond and at Shanklin Park and Rogers Park. They surveyed many species that indicate high water quality, including American Brook Lamprey, Golden Redhorse, Horneyhead Chub, Logperch, Longear Sunfish, Mimic Shiner, Northern Hogsucker, Rainbow Darter, Rock Bass, Shorthead Redhorse, and Smallmouth Bass. They also collected and released Greater Redhorse (a state-endangered species, pictured above) and some unusual fish like the Longnose Gar, Bowfin, and Channel Catfish.



## Chemical Health

As part of the Stormwater Partnership's summer surface water quality monitoring program, in 2022, the Greater Elkhart County Stormwater Partnership partnered with the St. Joseph River Basin Commission (SJRBC). Dr. Kate Barrett, with the SJRBC, synthesized chemical water quality data that has been collected by the Elkhart County Health Department since 2009. These efforts mark the first attempt to analyze the massive data set for trends that can inform water quality management decisions.

Dr. Barrett, Ph.D., is an aquatic ecologist with the SJRBC and conducted the analysis with the support of Basin Director Matt Meersman. Their work with Elkhart County's data is part of a larger effort to understand the overall health of the St. Joseph River Watershed.

The analysis looked at parameters monitored as part of the Partnership's program: dissolved oxygen, conductivity, pH, nitrates, phosphorus, chlorides, total suspended solids, and *E. coli*. We are so thankful for their work and appreciate their findings and insight. **Scan the QR code** to learn more about the water quality data and to view the report!



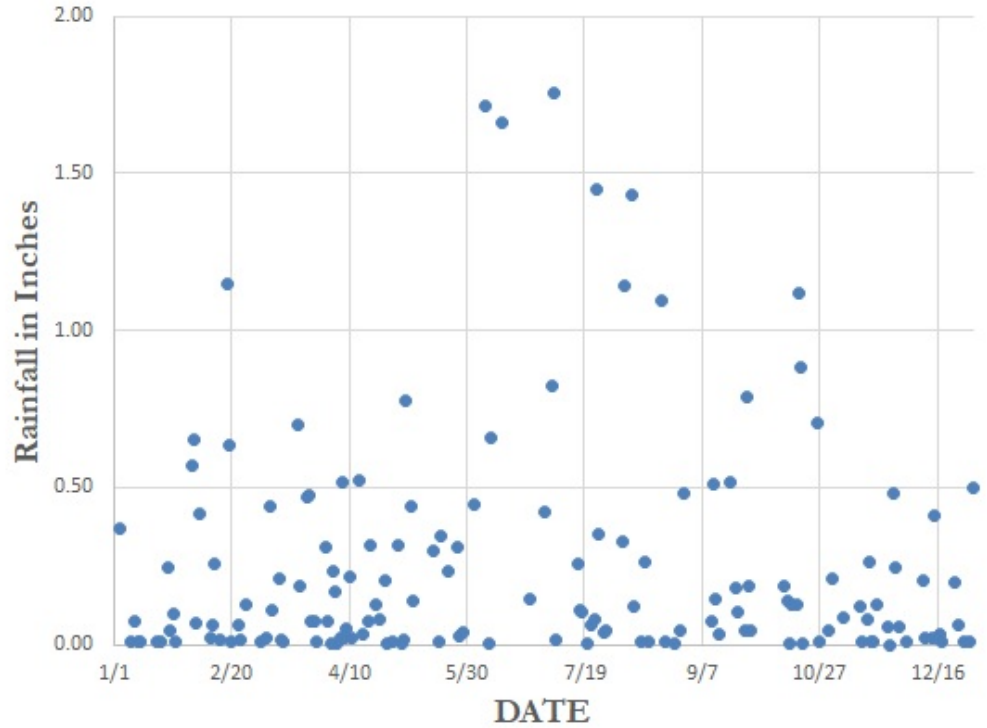
## Rain Report

In 2022, Goshen had its share of dry and wet days, averaging 154 days of measurable rain (0.01” or more), 24 days with rain events of 0.5” or more, and five days with extreme rain events of 1.25” or more.

Monitoring rainfall is an important part of managing stormwater runoff and its impacts. It helps us to understand the water cycle, precipitation’s impact on the environment, and even provides us with the necessary data for early flood detection.

During a rain event on February 17 and February 18, the Elkhart River flooded and reached a height of 7.57 feet. The rainfall readings for those two days were 1.15 inches and 0.63 inches respectively. This measured out to a total of 1.78 inches of rain within 48 hours. I know what you’re thinking; that doesn’t seem like enough rain to cause a flood event. In fact, on July 6, 2022, Goshen received 1.76 inches of rain in 24 hours and the height of the Elkhart River only reached 3.7 feet. There was only 0.02 inches less rain that July day, received in a much shorter period, and caused the Elkhart River to rise less than half of the February rain event. This was due mainly in part to winter weather. The previous snowfalls that were on the ground were the equivalent of an extra 0.91 inches of rain during its melting. Additionally, the ground conditions, due to the freezing temperatures, did not allow the water to soak into the ground. These variables all contribute to the effects of precipitation on our waterways and show how similar rainfalls can have different results based on the surrounding conditions.

### 2022 Average Daily Rainfall Across Goshen





# 2022 Stormwater Program By the Numbers

Stormwater Department staff committed 121 hours to continuing education

12 issues of the Stormwater Toolbox Newsletter published and sent to 300 city staff per issue

118 construction site visits to inspect erosion and sediment control measures and pollution prevention practices

7 post-construction stormwater management plans accepted by the Board of Public Works & Safety

5.28 miles of river, stream, and ditch surveyed for illicit pipe discharges

18 illicit discharge incidents detected and addressed

17 education events with Stormwater Department Staff presentations

1,395 cubic yards of material removed from catch basins by the Water and Sewer Department's vactor trucks

34 projects reviewed to ensure compliance with state and local stormwater regulations

361 storm sewer outfalls inspected and 35 flow samples taken for pollution indicator tests

3,804 tons of material collected by Goshen's Street Department with street sweepers



1,048 catch basins & 14 stormwater treatment units cleaned of captured sediment, trash, and more

Total precipitation across Goshen ranged from 35.4 inches to 37.5 inches

7.57 feet = maximum river height recorded Feb. 17  
1.96 feet = minimum river height recorded Oct. 16

21 stormwater issues reported by City staff and investigated by the Stormwater Department



# Project Highlights

## IDEM Audit

In October, the Indiana Department of Environmental Management (IDEM) conducted an audit of the Greater Elkhart County Stormwater Partnership. During this audit, IDEM reviewed the various MS4s of the Stormwater Partnership for compliance with the MS4 General Permit (MS4GP). Components of Goshen's Stormwater Program were audited, including illicit discharge detection and elimination, public education and outreach, and pollution prevention and good housekeeping. Good housekeeping is the act of maintaining proper

stormwater pollution prevention measures within our own facilities. This included a site visit to Goshen's Central Garage and Street Departments, where Goshen was found to satisfactorily meet all requirements.



## Water Fest

This year the Stormwater Department held the first-ever Water Fest in Mill Street Park on Goshen's northside. This year also celebrated the Clean Water Act's 50th anniversary. The event featured food and entertainment while watershed education partners came together to spread awareness about our water resources and efforts to protect them.





## Storm Drain Art

This past spring, Goshen called for artists to submit design proposals to the Stormwater Department. The theme of the storm drain art project was Dreaming of Clean Water. Submissions were accepted until March 18th and then the finalists were chosen. Once the talented artists were selected in April, they were given the green light to prepare their art projects at the selected storm drains before June 8th. On June 11th, during Water Fest, a public unveiling event was held with walking and biking tours of the newly created art. A big thank you to Everence Financial, Goshen Floral, Bethany Christian Schools, Cycle Works of Goshen, Goshen Chamber of Commerce, Snyder Paints, Abonmarche, Goshen Brewing Company, and The Electric Brew for sponsoring this event. [Scan the QR code for more info!](#)



## Outfall Survey

Stormwater staff spent this fall screening stormwater pipe outfalls (like the one pictured to the right) for signs of pollutant discharges and stream erosion caused by high-volume flows.

In 2022, staff walked along Horn Ditch, Leedy Ditch, New Miller Ditch, Rock Run Creek, and a few smaller tributaries. A total of 5.28 miles!

## Industrial Trash and Tires

In 2022, multiple illicit discharges were reported to the Stormwater Department. Industrial trash in Horn Ditch and used tire dumping in the Elkhart River were two of the reports that came in. City staff worked diligently to clean up these trash-filled areas and clear the waterways of the illicit materials that were dumped.





# Coming in 2023!

## Ordinance and Program Updates

In 2022, the Stormwater Department undertook a major education campaign to aid in transitioning construction sites to the new Construction General Permit requirements. The City will continue to move forward, updating programs, policies, and ordinances to reflect the changes. Currently, the Industrial Stormwater General Permit is being finalized by IDEM and will soon be released to the public.

As industrial users adopt the new permit requirements, the Stormwater Department will try to facilitate a smooth transition into the new system through education and communication. Contact us if you have any questions about the new Industrial Stormwater General Permit!

## Green Earth Education Day

Do you enjoy the Elkhart County 4-H Fair? Stop by on Friday, July 21, and celebrate 150 years of 4-H and agriculture. Join the Stormwater Department as we help kick off the Elkhart County 4-H Fair with Green Earth Education Day. Enjoy a water quality activity and chat with us about stormwater runoff and its impact on local waterways.



## Lower Elkhart River Watershed Grant

The Lower Elkhart River Watershed is approximately 300 square miles and includes Elkhart, Kosciusko, and Noble counties. Working as a sponsor for the grant, the City of Goshen Stormwater Board authorized Mayor Jeremy Stutsman to sign the grant application, for \$154,725 in funding. Partnering with the Elkhart River Restoration Association (ERRA) and applying for this grant are helping the City of Goshen reach the goals set in place by the City's newly adopted Flood Resilience Plan. The Elkhart River Restoration Association previously received a grant from the Indiana Department of Environmental Management to update the watershed management plan for the Upper Elkhart River Watershed. To find information on the Lower Elkhart River Watershed grant,

or other information on the ERRA, please visit their website at [elkhartriver.org](http://elkhartriver.org).



Thank you to those we collaborated with in 2022!



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