



INDIANA UNIVERSITY
**ENVIRONMENTAL RESILIENCE
INSTITUTE**

Hoosier Resilience Index – Year 1 Report

March 2021



Launched by the Indiana University Environmental Resilience Institute (ERI) in November 2019, the [Hoosier Resilience Index](#) (HRI) is a tool for local governments in Indiana to learn about their vulnerabilities to climate change and assess how prepared they are to meet the environmental changes already occurring throughout the state. This report reviews the results achieved in the tool's first year.

Climate Vulnerability

The HRI presents towns, cities, and counties in Indiana with historic and projected data on heat and precipitation events that illustrate how climate change will specifically impact their community. Local governments can review this data alongside a map that overlays floodplain and land use with demographics, enabling local officials to understand how their most vulnerable residents may be impacted.

How many people are reviewing their hometown climate hazards?

As of January 2021, the HRI website had been viewed 15,863 times. Most visitors viewed the homepage, dove into the details of their community's climate vulnerability, and investigated how the Readiness Assessment would evaluate preparedness. Local governments and residents from across the state are using the tool, but the communities that have been searched for the most on the [Climate Vulnerability page](#) are Bloomington, Richmond, Jasper, South Bend, Goshen, and Gary.

HRI Readiness Assessment

To measure their progress toward climate resilience, local governments can participate in the HRI Readiness Assessment, a survey tailored to their specific jurisdiction. Completing the assessment provides information on how prepared the community is for three critical impacts of climate change: increased extreme heat, increased extreme precipitation, and increased likelihood of flooding. The assessment is divided into eight worksheets: Built Environment, Economic Development, Emergency

Management, Energy and Public Utilities, Food and Agriculture, Natural Resources, Planning and Land Use, and Public Health and Safety.

How are the Readiness Assessments going?

As of January 2021, 14 communities had completed Readiness Assessment, and thirteen more are in the process of completing their Assessment (Table 1).

Table 1. Hoosier Resilience Index Readiness Assessment Communities, Nov 2019 – Jan 2021

Complete	In Progress
Bloomington	Carmel
Clarksville	Floyd County
Crawford County	Franklin County
Culver	Jasper
Dyer	Lafayette
Fishers	Logansport
Fort Wayne	Monroe County
Goshen	Morgan County
Huntington	Portage
Noble County	Tippecanoe County
Richmond	Vanderburgh County
Spencer	Warrick County
West Lafayette	Zionsville
Whiting	Your town next...?

ERI is incredibly proud of the communities that have taken steps toward building climate resilience by completing their Readiness Assessment.

Overwhelmingly, communities that have completed their assessment report that the Readiness Assessment is not overly burdensome. All communities are different, but most have found that the assessment can be completed within the range of 4 to 40 hours of staff time, depending on the number of respondents and data collection process. Some communities are small enough that one person may be able to answer every question, and others ask multiple people to respond to each worksheet. Every community has found the time well spent.

What are we learning from the completed assessments?

The data generated by the completed Readiness Assessments reveal emerging statewide trends, painting a picture of the state of climate resilience in Indiana among the communities that have participated.¹

Table 2. Readiness Assessment - Average Scores, Nov 2019 - Jan 2021, n=14

	Extreme Heat	Extreme Precipitation	Floodplain Management
Score (range: 1-10)	4.51	5.03	4.95

Across the state, the communities that participated in the assessment in the first year are doing well in some areas and lacking in others (Table 2). Each average score is around a 5.00. Possible scores range from 1 to 10. The lowest score achieved by any participating community is for extreme heat at 2.79, and the highest score is 6.88 for extreme precipitation.

Indiana has historically been a wet state accustomed to frequent rainstorms and flooding, so it is unsurprising that scores related to extreme precipitation and floodplain management are higher than scores for extreme heat. However, there is still ample room for communities to improve their resilience to extreme precipitation and flood events.

While average temperatures have increased over the past century, Indiana has not commonly experienced the kind of extreme heat waves that cause attention-getting public health crises. The relatively low scores related to extreme heat preparedness reveal an opportunity for communities to improve their resilience for future conditions.

Table 3. Readiness Assessment - Average Worksheet Response, Nov 2019 - Jan 2021, n=14

Worksheet	Average Response for All Communities (range: 1-5)
Built Environment	2.91
Emergency Management	2.86
Energy and Public Utilities	2.86
Natural Resources	2.79
Planning and Land Use	2.12
Food and Agriculture	1.92
Public Health and Safety	1.64
Economic Development	1.56

¹ The HRI is not a third party evaluation of Indiana cities, towns, and counties; communities evaluate themselves independently. Results shown here reflect the average results from the communities that have completed the Readiness Assessment between November 2019 and January 2021.

The average worksheet scores range from 1.56 in Economic Development to 2.91 in Built Environment (Table 3)². The average response to questions on the highest scoring worksheet – Built Environment (2.91) – indicates that participating communities are most focused on the impacts in this section: addressing increased stress on roadways, bridges, and transportation systems; the likelihood of river and surface flooding in developed areas; and the likelihood of impacts on stormwater management infrastructure. The highest scoring action in the Built Environment section, and the second highest scoring action overall, was 3D - Increase street sweeping and stormwater drain maintenance (3.75) (Table 4). The highest scoring action overall was 9A – Ensure back-up energy systems are in place for maintaining access to drinking water (4.00) (Table 4).

Results from the completed assessments also show that there are opportunities for towns, cities, and counties to improve their climate resilience, particularly when it comes to Economic Development and Public Health and Safety, the two lowest scoring worksheets (Table 3). The lowest scoring actions came from the Economic Development, Public Health and Safety, and Planning and Land Use worksheets (Table 4). Other low-scoring actions are 4A – Evaluate how climate change could affect the local economy (1.54), 8D – Establish a protocol for providing assistance to residents who may face financial strain caused by higher energy costs (1.77), 11A – Protect farmland and urban farms and gardens (1.58), 18C – Develop local air pollution reduction programs (1.71), and 21A – Educate about heat related illness and prevention. These results show that without further action, many participating communities, especially their most vulnerable residents, could face grave economic and health consequences from climate change.

Table 4. Readiness Assessment - Highest and Lowest Scoring Actions, Nov 2019 - Jan 2021, n=14

Worksheet	Action Item	Average Response
Highest Scoring Actions		
Energy and Public Utilities	9A. Drinking water back-up energy	4.00
Built Environment	3D. Stormwater maintenance	3.75
Built Environment	1D. Transportation options	3.67
Natural Resources	14A. Tree canopy protection	3.57
Emergency Management	6A. Protect infrastructure from flooding	3.50
Lowest Scoring Actions		
Planning and Land Use	16B. Vegetation protection areas	1.23
Economic Development	4E. Plan for climate refugees	1.27
Public Health and Safety	19B. Plan for high air pollution days	1.38
Public Health and Safety	22B. Reduce exposure to disease vectors	1.42
Planning and Land Use	17A. Zoning and planning to protect habitats	1.43

² Responses to questions in the Readiness Assessment can range from 1 to 5. A 1 indicates next to no action taken on a specific vulnerability, and a 5 shows a thorough and established program or plan of action.

After the HRI Readiness Assessment

What are communities doing after completing the assessment?

Upon completing the Readiness Assessment, ERI staff meet with local government representatives to discuss the assessment results and review areas of strength and weakness. Some Readiness Assessment communities are taking the results of their assessments and translating them into action. The Town of Spencer is beginning to develop a stormwater utility to address their flood risk. They recently received a \$60,000 grant to conduct a stormwater engineering study. The City of West Lafayette encouraged neighboring Lafayette and Tippecanoe County to complete their assessments as part of a regional climate action plan. Richmond, Fort Wayne, and Goshen used the Readiness Assessment to identify areas for improvement to include in their climate action plans.

Below are examples of feedback from a few communities that have completed their assessments, discussing what they discovered and what they will do next.

"The questions [in the HRI Readiness Assessment] prompted me to really think about issues I hadn't thought about before. The assessment reminded me of a 2009 study recommending that we do a stormwater management plan. We took it down off the shelf, and now we are implementing it."

Mike Spinks, Spencer Town Council President

"I was surprised at how far-reaching the impact of this is across City departments and projects and in the broader community. The Readiness Assessment helped us consider things that don't immediately come to mind when thinking about preparedness."

Mayor Richard Strick, City of Huntington

"It would be helpful to complete the HRI regularly or set benchmarks to work toward that helps the City see progress. Benchmarks would also be a way to encourage City Departments to become more knowledgeable and involved in improving our overall resilience."

Theresa Sailor, City of Goshen

Up Next for the HRI

In 2021, ERI is eager to take the Hoosier Resilience Index to more communities throughout the state and help local governments that have completed the Readiness Assessment improve their climate resilience. To those ends, ERI will form a community of practice, established through a platform for officials and staff from local governments that have completed the assessment to meet regularly to share best practices. ERI has also started providing a "Next Steps" report to each community upon completion of the Readiness Assessment. This "Next Steps" report includes information on where the community is

doing well, where they can improve, what similar communities have done to address the same issues, and where they can find funding opportunities to start projects of their own.

ERI welcomes all feedback and questions on the Hoosier Resilience Index. No tool is perfect, and we have already received wonderful input from communities. Please send your questions and feedback to resindex@iu.edu or contact us at 812-855-8539.

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About the Environmental Resilience Institute

Indiana University's Environmental Resilience Institute brings together a broad, bipartisan coalition of government, business, nonprofit and community leaders to help Indiana better prepare for the challenges that environmental changes bring to our economy, health, and livelihood. In collaboration with partners across the state, the institute is working to deliver tailored and actionable solutions to Indiana communities.