# TIPPING POINT PLANNER

Supporting Sustainable Communities in Great Lakes States

Throughout the Great Lakes basin, community leaders make long-term management decisions that can have substantial positive or negative impacts on the environmental health of local resources as well as on quality of life.

To protect natural resources and enhance community resiliency, it is crucial to: understand human-induced ecological stress; identify indicators of natural resource conditions; and determine tipping points, which trigger rapid and sometimes irreversible shifts in how ecosystems function.
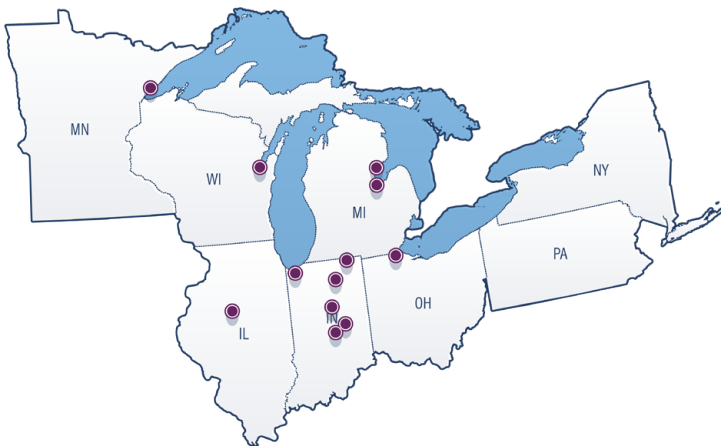
Through Tipping Point Planner (tippingpointplanner.org), communities in Great Lakes states can plan for a sustainable future by directly linking data to the local decision-making process. With help from trained facilitators, Tipping Point Planner enables professional as well as citizen participation in the land use planning and management process, including maintaining projects using a HUC 12 watershed scale.

Innovative visualization dashboards, paint tools, and interactive community visioning exercises provide the framework to define a community's priorities and to explore land use strategies and policies that enhance local values. Participants are led through a process in which they examine past and predicted land use changes, identify environmental threats, and define natural resource assets in need of protection or restoration.

As an example, the decision tool allows participants to evaluate how proposed land use changes may affect water quality or coastal ecosystems. They select critical action goals to sustain water quality and ecosystem integrity, such as reducing runoff, and action strategies that meet their goals, which can include limiting or mitigating for impervious surfaces.

The result of the facilitation process is an action plan. It includes an overview of the community's status and whether it is nearing or exceeding environmental tipping points. And it provides customized implementation steps (for instance: planning options, example policies, sample ordinances, educational programs, municipal BMPs) to improve current conditions and steer clear of tipping points.

## Communities where Tipping Point Planner has been implemented



(Includes pilot, community, and train-the-trainer programs.)

## COMMUNITY APPLICATIONS

Tipping Point Planner has been implemented in Great Lakes states to assist decision makers with watershed or land use planning. Through the Tipping Point Planner facilitated workshop series, participating communities and organizations have developed action plans that address land use and water quality issues. Illinois-Indiana Sea Grant is developing a train-the-trainer curriculum to expand the facilitator network. The curriculum will equip participants with facilitation, technical, and other skills and knowledge to help them effectively engage the decision-support tool in communities served by the Great Lakes Sea Grant network.

## Communities where Tipping Point Planner has helped inform the planning process

| Community | Population | Program Focus | Primary Partners and Leads |
|---|---|---|---|
| Peoria, Illinois | 115,000 | Green Infrastructure Implementation | City of Peoria Innovation Team |
| Hobart, Indiana | 28,425 | Comprehensive Plan Update | City of Hobart |
| Kokomo, Ind. | 57,799 | Comprehensive Plan Update | City of Kokomo, American Structurepoint |
| Michigan City, Ind. | 31,118 | Green Infrastructure Implementation | City of Michigan City, Alliance for the Great Lakes, Delta Institute, Purdue Agricultural and Biological Engineering |
| Gibson County, Ind. | 33,703 | Watershed Planning | SWCD/NRCS |
| Perrysburg, Ohio | 21,570 | Comprehensive Plan and Land Use Planning | City of Perrysburg, Reveille LTD., Ohio Sea Grant |
| Au Gres, Michigan | 61,000 | Watershed Planning | Huron Pines, Michigan Sea Grant |

## Modular themes allow for a tailored community workshop series.

### STREAM HEALTH

Determine how close your watershed is to a tipping point now and in the future by examining indicators, such as the health of organisms living in your streams.

University of Michigan School for Environment and Sustainability

Michigan State University Hydrogeology Lab

### NUTRIENT LOADING

Explore present and future modeled phosphorus and nitrogen loading levels and identify the major sources of each in your watershed.

Purdue University Agricultural and Biological Engineering Department

Purdue University Human-Environment Modeling & Analysis Lab

Michigan State University Hydrogeology Lab

### GREEN INFRASTRUCTURE

Discover the type and location for optimal green infrastructure investment in your watershed.

Purdue University Agricultural and Biological Engineering Department

### FOOD WEB

Explore how phosphorus loading from the watershed may affect the biomass of various organisms in the food webs.

University of Michigan School for Environment and Sustainability

NOAA Great Lakes Environmental Research Lab

### LAND USE CHANGE

Through land use modeling, discover what your community may look like under future scenarios and how each scenario affects the health of your watershed.

Purdue University Human-Environment Modeling & Analysis Lab

### COASTAL WETLAND HEALTH

Determine how close your watershed is to a tipping point by examining the health of the organisms living in wetlands.

University of Michigan School for Environment and Sustainability