



# WHERE IS THE WATER?

## Plan Now, Avoid Crisis Later

By Tom Schuman

In the drought of 2012, many Indiana residents experienced angst at not being able to water their lawns on their normal schedule. But what if a lack of water prevented businesses from being able to manufacture their products and job losses were the result?

That scenario is already playing out in various parts of the country. California and other western states have drawn most of the headlines, but the challenges are far from just geographic:

- In Texas, state officials reported earlier this year that as many as 34 small communities face the risk of running out of water in the coming months. Major cities (Dallas, San Antonio and Austin) are also feeling the impact.

The future of a Dow Chemical plant is in question after 74 years due to water shortages, and Gov. Rick Perry admits, “Other states are watching what we are doing. When we compete with them for a major expansion site or a relocation for major employers, you better believe water is part of the conversation.” The president of the Federal Reserve Bank of Dallas calls water scarcity the state’s biggest potential threat.

- Georgia, Alabama and Florida have battled for decades over control of the resources in two major river basins. At stake: continued growth in metro Atlanta, power generation and municipal supply in Alabama and the multi-million dollar shellfish industry in Florida.
- Various interstate agreements intended to regulate water resources are the subject of court battles, including the Red River compact between Texas, Oklahoma, Arkansas and Louisiana.

A Pacific Institute/VOX Global survey earlier this year of large companies throughout the country found nearly 60% indicating that water is poised to negatively affect business growth and profitability within five years. More than 80% of respondents say water will impact decisions on where to locate facilities over that span.

Is Indiana in the same precarious position today as some of these other states? No. Will it be in the future if a strategic water resource plan is not developed and implemented, as well as investments made in infrastructure? Undoubtedly yes.

One of the goals under the Superior Infrastructure driver of the

*Indiana Vision 2025* economic development plan is to ensure adequate fresh water for citizens and businesses. An Indiana Chamber Foundation-led study began in late 2013. Representatives from the following groups were part of an advisory council that guided the work of Jack Wittman, Ph.D., a Bloomington-based geoscientist with INTERA Incorporated:

- American Council of Engineering Companies
- Indiana Association of Cities and Towns
- Indiana Corn/Soybean Council
- Indiana Energy Association
- Indiana Farm Bureau
- Indiana Mineral Aggregates Association
- Indiana Rural Water Association
- Indiana Section – American Water Works Association
- Indiana Wildlife Federation
- National Association of Water Companies
- Nucor Steel
- Utilitus Consulting

Several state legislators attended meetings and participated in the discussion and debate. They will play a pivotal role in taking the results of this work and using it to guide development of the state’s water resource plan. They were state senators Ed Chabonneau, Doug Eckerty and Jim Merritt, as well as state representatives Eric Koch and Steve Stemler.

The bottom line: Water supplies are not evenly distributed throughout Indiana. In the central portion of the state, utilities have identified the need and taken initial steps, but “supplies are limited and, without new resources, economic growth is at risk” and in southern regions, “local water resources are not always able to meet anticipated future needs.”

A portion of the executive summary of *Water and Economic Development in Indiana: Modernizing the State’s Approach to a Critical Resource* follows. The full report, including county breakouts, is available at [www.indianachamber.com/water](http://www.indianachamber.com/water).

# Modernizing the State's Approach to a Critical Resource

Water is a valuable commodity, and Indiana, unlike many areas of the country, is fortunate to have abundant water resources. The portion of the state's economy that requires plentiful water supplies is the highest percentage in the country, according to a recent report. While current high-capacity users are accessing the resource, local shortages have and will continue to occur.

Today, only with conservation and proper management can the state's rivers, streams, lakes and aquifers sustain current water needs. Future demands will increase with economic growth and industrial development, enhancing the need for more formal and technical methods to meet our water supply needs.



## Supply

### North of the Wabash River, water is relatively abundant

In and around the Kankakee River Basin in the northern part of the state, there are thick regional aquifers and reliable, drought-resistant streams. In general, this part of the state has relatively abundant supplies to support expected growth in irrigation and population. However, the recent increases in seasonal irrigation make collecting data on these aquifers and streams important to: 1) ensure future supply reliability; 2) manage the impacts on stream depletion; and 3) determine the sustainable uses in these basins.

### Central Indiana has marginal supplies

The water supply in Central Indiana is diverse. It includes diversions from the West Fork of the White River, storage in water supply reservoirs in tributary streams and groundwater from shallow and deep aquifers. The diversification of the water portfolio reflects the fact that there is no single solution to water supply and growth in this portion of the state. Supplies are limited and, without new sources, economic growth is at risk.

### South of Indianapolis, supplies are only locally available

In Southern Indiana, local water resources are not always able to meet anticipated future public water-supply needs. Given that this portion of the state is poised for economic growth, it makes sense to provide incentives for developing more diversified supplies for these communities. This may mean targeting distant water supplies, including the large U.S. Army Corps of Engineer reservoirs built in the 1960s, as sources that can supplement small community systems and accommodate growth.

## Demand

### Groundwater use is increasing

While industrial use, power generation and mining operations continue to pump water from rivers and streams, over the last decade groundwater withdrawal has increased more rapidly than surface water diversions. The aquifers of the state are becoming increasingly important as a means of satisfying seasonal demands while controlling costs of treatment and conveyance.

### Irrigation is expanding in Northern Indiana

Irrigation of row crops continues to be the fastest growing sector of water use in the state, even in some areas that have declining populations. This reflects the significant returns on investment provided by irrigation (primarily new high-capacity wells) and the increasing value of insurance against dry periods. Because most areas that are dominated by irrigation water use also have more prolific aquifers and more reliable water supplies, the primary impacts that require analysis are the seasonal rebound of aquifers from summer pumping, effects on municipal or industrial neighbors, irrigation well spacing and the need for additional groundwater monitoring.

### Public supply growth drives demand in Central Indiana

The population in Central Indiana is growing rapidly, and estimates of future demand suggest another 50 million gallons per day of supply will be required to meet the needs of the region by 2050. As the water utilities in the middle of the state consider new well fields to satisfy growth, conservation and demand management will become standard policy in meeting seasonal peak demand for water. Limited groundwater and relatively low flows in streams limit available options.

### Strategic infrastructure investment

The Interstate 69 expansion in Southern Indiana, along with continued funding of the Crane Division of the Naval Surface Warfare Center (Crane NSWC), creates a long-term economic growth opportunity in this part of the state. This growth depends, in part, on the availability of safe and reliable water supplies. Along I-69, there are few aquifers or perennial streams present immediately south of Bloomington. Further south, however, water is available from along the White and Wabash rivers. Continued development of these investment corridors means ensuring that businesses have access to adequate supplies of water.

# Recommendations

While the Indiana Utility Regulatory Commission, the state Legislature, the Indiana Department of Natural Resources and the Governor’s Water Shortage Task Force (2009) have all made useful recommendations over the past several years to modernize water supply planning in Indiana, these recommendations have been somewhat general in nature. This report identifies the geographic location of major water resources and future demands within the state to provide a new level of specificity to the water planning tasks that lie ahead.

## Create awareness about the need for water supply planning

Beyond flood conditions, Indiana has never before needed to actively manage water resources. That is no longer true. Changes in water use and natural limits on availability need to be explained to the public. The only way for Indiana to grow economically and demographically is to manage the critical resource that supports industry, power generators, ecosystems, agriculture and the public at large.

The most important aspect of the water resource planning process is interaction with the public and high-capacity water users. Water supply planning succeeds when people at the local level – irrigators, public water supply operators, power plant operators, industrial water users, gravel and aggregate processors, coal mine operators – all understand the many uses and long-term value of our water resources. Other states have found that it takes up to three years to fully understand and document how each region of the state differs in both supply and use.

## Largest Projected Water Use Increases by County (2012-2050)

County	Predicted Annual Increase by 2050 (MGY*)	2012 Water Use (MGY)	2012 Surface Water	2012 Ground Water	2012 Energy Production	2012 Industrial	2012 Irrigation	2012 Public Supply
LaGrange	23,082	10,359	18.1%	81.9%	0.0%	0.5%	82.4%	3.7%
LaPorte	22,424	20,246	59.9%	40.1%	28.2%	0.1%	50.4%	16.7%
Hamilton	19,245	25,695	55.3%	44.7%	0.3%	37.7%	4.7%	54.4%
Jasper	16,480	18,669	78.4%	21.6%	39.3%	4.8%	53.8%	2.0%
Elkhart	13,951	13,340	12.5%	87.5%	1.3%	1.9%	51.1%	43.1%
Noble	10,324	5,000	7.6%	92.4%	0.0%	7.3%	72.2%	19.6%
Clark	8,311	9,792	16.7%	83.3%	0.0%	16.1%	1.5%	82.5%
Shelby	6,453	4,107	12.8%	87.2%	0.9%	10.0%	34.2%	53.3%
Pulaski	6,370	5,021	29.3%	70.7%	0.0%	16.5%	77.4%	3.2%
Kosciusko	6,113	10,210	7.1%	92.9%	1.6%	17.5%	65.7%	15.1%

\*MGY-million gallons per year

## Coordinate efforts

To ensure long-term success, one state-level entity needs to be designated to lead planning efforts of the agencies and universities. The General Assembly should pass legislation that ensures agencies and universities work toward a common goal for water resource planning. There are many state and federal agencies in Indiana that currently play a role in water management, Sadly, when everyone is responsible, no one is responsible. Given the imperatives of growth, Indiana needs a dedicated team with the technical capacity to support local planning while providing rules, models and data for the broader regional planning process.

## Create a robust system for monitoring water resources

- Monitor groundwater availability
- Regularly analyze low flow in streams
- Evaluate aquifer sustainability and yield
- Optimize reservoir management
- Develop water demand forecasts by drainage basin

## Fund water research

In as much as Indiana needs to develop new ways to manage this precious resource, it needs to fund research in water resources engineering and policy development. Establishing and using a water planning program to enhance water security means investing in the research needed to understand the state’s particular hydrologic systems. Decisions that are being made today will impact the availability of water for generations to come.