

Exhibit A Executive Summary

State of Iowa

Iowa\_PhaseII\_ExecutiveSummary.pdf

## Executive Summary: The Iowa Watershed Approach

Driving across Iowa in high summer offers a lovely vista — mile after mile of lush green rolling hills and flatlands, with tidy fields of corn and soybeans stretching toward the horizon. This beautiful landscape is home to some of the most fertile and productive land in the world, supporting an agriculture industry whose production levels are unmatched worldwide.

But Iowa's modern agriculture landscape has altered the movement of water within the state's watersheds and reduced the land's natural resiliency, which impacts peak water flows, flooding, and water quality, especially during extreme weather events. Before the first plow turned over Iowa's grassland, the tall grass prairie, with its deep root systems, stabilized the thick black topsoil. These roots held water like a sponge, slowing runoff. Today, Iowa's hydrology has been altered. Where the land once had natural resilience to storm events, the soil now erodes more easily during heavy rainfall events. As a result of landscape changes, waterways move water more quickly, which heightens flooding risks. Nutrients (nitrogen and phosphorous), too, move through the waterways, especially during flood events, unintentionally affecting water quality and drinking water supplies, recreation, tourism, and biotic diversity.

From 2011–2013, Iowa suffered eight Presidential Disaster Declarations, encompassing 73 counties and more than 70% of the state. In July 2011, more than 200 homes in Dubuque's Bee Branch neighborhood sustained severe flood damage. In 2013, hundreds of Storm Lake homes flooded. Dangerous untreated sewage backed up into homes and the nearby lake. In June 2013, two heavy rain events washed out roads across Benton County, reducing residents' access to emergency services and causing \$5M in infrastructure damage; the same storm resulted in 2.5–5 *tons* of soil loss per acre in Tama County.

Devastating as these events were, 2011–2013 do not represent Iowa's worst flood years. Long-term data show that heavy precipitation and flooding events are increasing in frequency

across the Midwest, and models predict this trend will continue in the future. Under these circumstances, a new paradigm for flood resilience is needed—one that decreases flood risk, improves water quality, and increases resilience. The Iowa Watershed Approach (IWA) is, at its core, a watershed-scale program based on a holistic approach recognizing that: 1) heavy precipitation and flooding events are increasing in frequency; 2) upstream activities impact downstream communities; 3) upstream and downstream communities need to voluntarily work together; 4) when possible, flooding should be addressed at its source, using science-based, reasonable, cost-effective practices; 5) improving community resilience to floods requires risk mitigation *and* community-directed initiatives and planning; and 6) program strategies must also respect, protect, and sustain Iowa’s valuable agricultural economy, which provides food, fuel, and fiber for the world and sustains family incomes for many Iowans.

The State of Iowa proposes a program through which Iowans will work together to address factors that contribute to floods. This approach is consistent with other statewide programs in Iowa to reduce flooding and improve water quality, such as the Iowa Flood Mitigation Program and the Iowa Nutrient Reduction Strategy. *We will improve quality of life and health through upstream watershed investments tied to community resilience programming activities. This will result in a state-of-the-art adaptive model to make Iowa’s vulnerable populations more resilient to changing flood hazard conditions, today and for the next century.*

The IWA will accomplish six specific goals: 1) reduce flood risk; 2) improve water quality; 3) increase resilience; 4) engage stakeholders through collaboration and outreach/education; 5) improve quality of life and health, especially for vulnerable populations; and 6) develop a program that is scalable and replicable throughout the Midwest and the United States.

Nine distinct watersheds representing different Iowa landforms will serve as project sites for the IWA. Each will form a Watershed Management Authority, develop a hydrologic assessment

and watershed plan, and implement projects in the upper watershed to reduce the magnitude of downstream flooding and to improve water quality during and after flood events. Landowners will pay 25% of the construction cost for projects on their land, further demonstrating their commitment to land stewardship, the environment, and their downstream neighbors.

Dubuque is well into its own IWA initiative within the context of an urban watershed impacted by devastating floods (six flood-related Presidential Disaster Declarations from 1999–2011). The city’s Bee Branch Creek was enclosed as a storm sewer more than a century ago. The confined system was too small, moved water too quickly, and did not filter out nutrients or allow water to infiltrate the ground. Dubuque recently daylighted the creek, returning it to a more natural state. The city now proposes an infrastructure project and the Bee Branch Healthy Homes Resiliency Program to repair flood damaged homes and make them more resilient to floods.

The IWA will also help communities prepare for, respond to, recover from, and adapt to floods. This program will assess resilience in the targeted watersheds, engage communities in discussions about their unique resilience needs, and help communities formulate and begin to act on resilience action plans. Formative and summative assessments will guide programmatic improvements, as well as monitor and encourage participation by under-represented groups.

The IWA represents a vision for Iowa’s future—a future that voluntarily engages stakeholders throughout the watershed to achieve common goals, while moving toward a more resilient state. It is a replicable model for other communities where the landscape has lost its natural resilience to floods. Although the IWA targets watersheds impacted by floods from 2011–2013, the impacts will ripple downstream from Iowa to the Mississippi River to the Gulf of Mexico. This program is not only about Iowans helping Iowans, but also about demonstrating Iowans’ commitment to agricultural stewardship, to the environment, to their neighbors, and to the future.