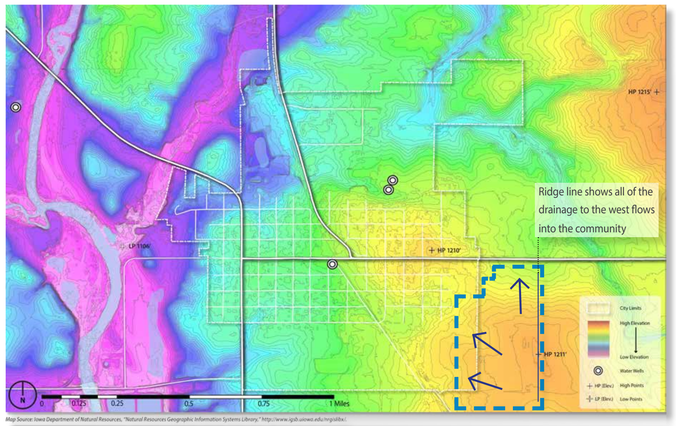
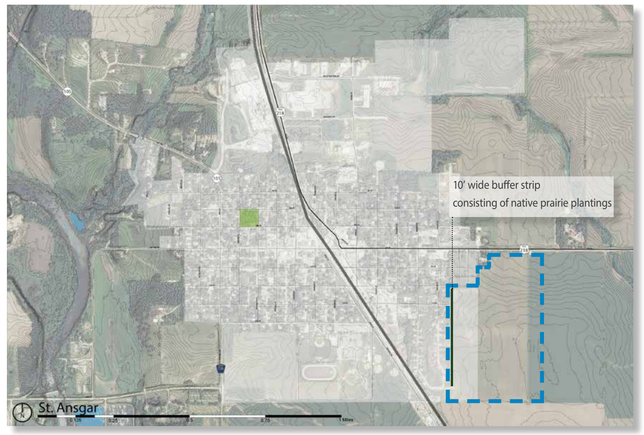
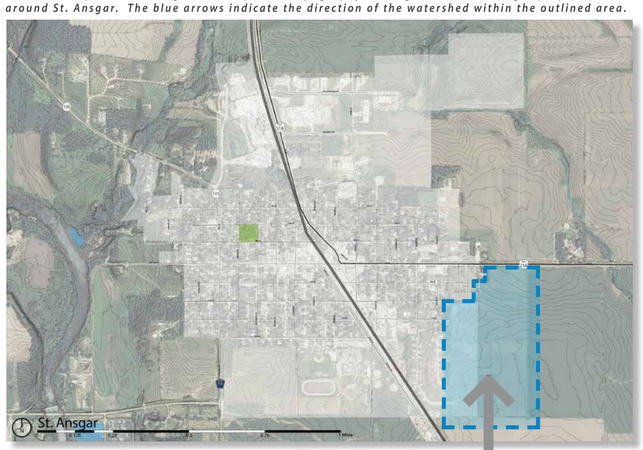


Map Source: Iowa Department of Natural Resources, "Natural Resources Geographic Information Systems Library," http://www.igsb.uiowa.edu/nrgislibx/.

Elevation map shows the high and low points, topography and high (red) to low (light purple) elevations around St. Ansgar. The blue arrows indicate the direction of the watershed within the outlined area.



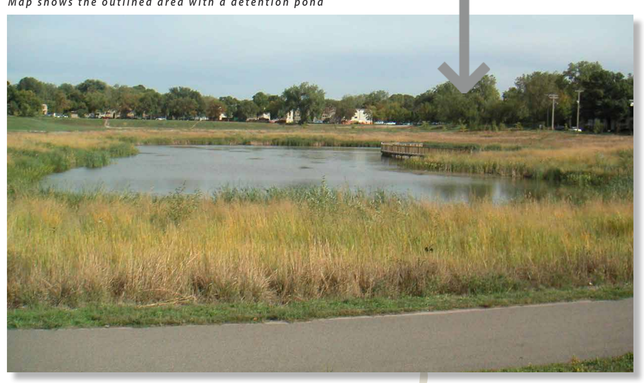
Map Source: Iowa Department of Natural Resources, "Natural Resources Geographic Information Systems Library," http://www.igsb.uiowa.edu/nrgislibx/.



Map shows the outlined area converted to the CRP (Crop Reserve Program)

The above photo shows what the area could look like if it was part of the CRP program, which adds habitat to cropland, while protecting soil and water quality

Map shows the outlined area with a detention pond



Creating a detention pond would allow for the run-off to be stored on-site and discourage excess water from flowing into the community

Stormwater Management

Due to topography as illustrated on the elevation map on the far left, a high volume of surface runoff comes through town from outside the community before entering the Cedar River. As weather patterns change, rainfall events become more intense, with increased development and changes in land use, the City's stormwater management system has struggled to handle the runoff. The system consists of mostly open ditches and culverts that become inundated during major rain events. The heavy rains of 2008 and 2013 caused severe flooding, especially in newer residential developments and down Seventh Street.

Addressing this complex issue is challenging, to say the least, and must include multiple strategies. Key to the success will be good public-private partnerships that are able to address stormwater both within and outside of city limits. One landowner has volunteered to lease a 10-foot wide strip of land along the back of The Seasons housing development. The intent is to plant it in native prairie to slow runoff and filter field litter. This will likely be effective for smaller rain events.

Converting crop land in the watershed to perennial vegetation such as native prairie flowers and grasses is a very effective way to limit the amount of surface runoff. The Conservation Reserve Program (CRP) is a federal U.S.D.A. program that provides financial incentives to landowners to make this change. Deep-rooted native prairie plants build up the soil's structure, create more pore space, and add organic matter to the soil. During a rainfall event, all of these things help more water soak into the ground. Put another way, once established, these plantings transform the land into a large sponge that keeps rain on-site and decreases runoff.

Detention ponds designed to capture this runoff and release it slowly might be another solution but would require a land purchase by the city and costly construction. Retrofitting an adequate
stormwater system into existing community infrastructure could be possible but very costly.

Meanwhile, there are opportunities to handle the much more frequent smaller rain events and local runoff. The community and individuals could install stormwater control measures such as rain gardens or buffer strips to treat or infiltrate and rain barrels to capture this runoff. More information about what individual property owners could do can be found at www.rainscapingiowa.org.

The corner of 7th Street and Summer Street during a rain event in 2013. Similiar rain events also took place in 2008. Photo Credit: Myrna Jorgensen

During a rain event in 2013, corn stalks and crop debris littered the community
Photo Credit: Myrna Jorgensen

St. Ansgar

Stormwater Management

Landscape Architects and Intern: Craig Ritland, PLA, FASLA, Samantha Price, PLA, RITLAND+KUIPER Landscape Architects and Jake Spitz, Iowa State University

Iowa Department of Transportation Trees Forever ISU Landscape Architecture Extension ISU Extension Community and Economic Development

IOWA'S LIVING ROADWAYS
Summer 2016