Quasqueton Flood Resilience

This Story map is created as part of the Iowa Watershed Approach Project, Quasqueton Flood Resilience Action Plan.

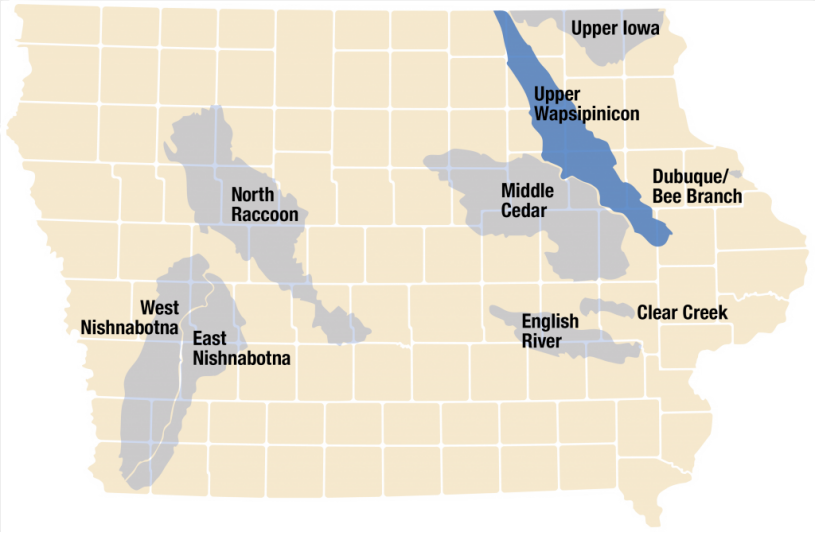
Northeast Iowa RC&D **June 25, 2021**

About the Project

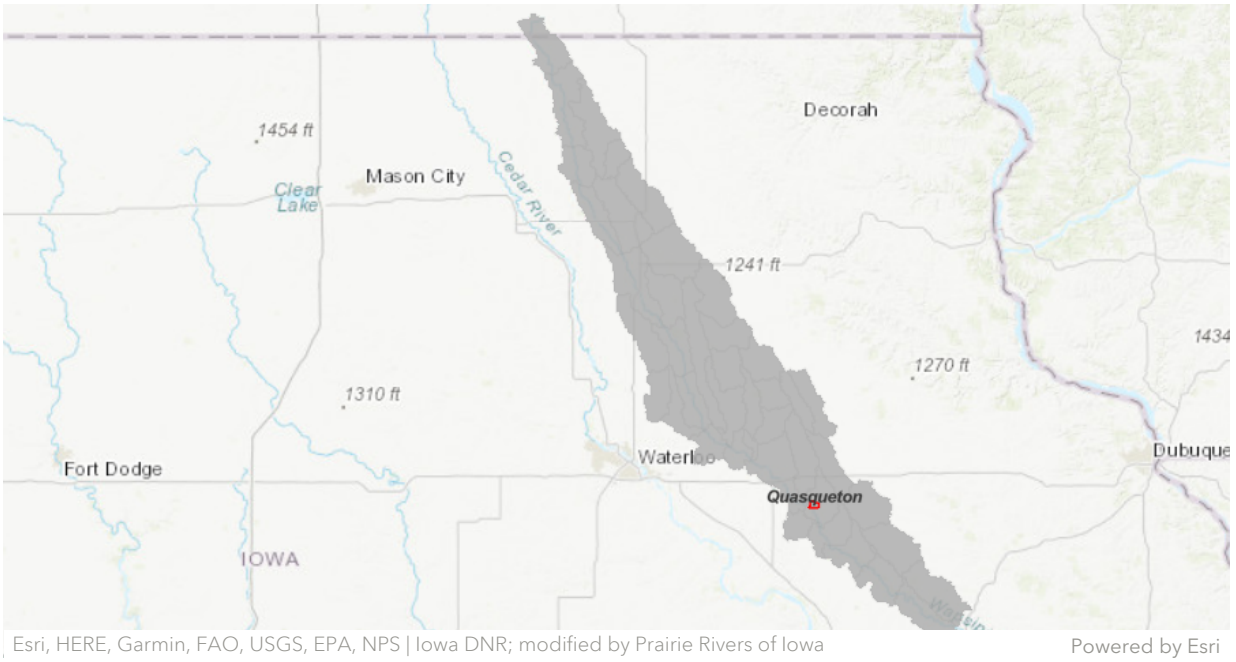
The City of Quasqueton was selected by the University of Iowa Flood Resilience Team to develop a Community Flood Resilience Action Plan as part of the Iowa Watershed Approach Project. Project is funded by a grant awarded to Iowa Economic Development Authority from the US Department of Housing and Urban Development (HUD).

The Iowa Watershed Approach Project includes leadership from the Iowa Flood Center (IFC), Iowa Department of Natural Resources (IDNR), Iowa Homeland Security and Emergency Management, and local partners working together to reduce the impact of flooding in Iowa. “The Iowa Watershed Approach (IWA) represents a program through which Iowans are working 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." To learn more about this project visit https://iowawatershedapproach.org/



Map courtesy of Iowa Watershed Approach

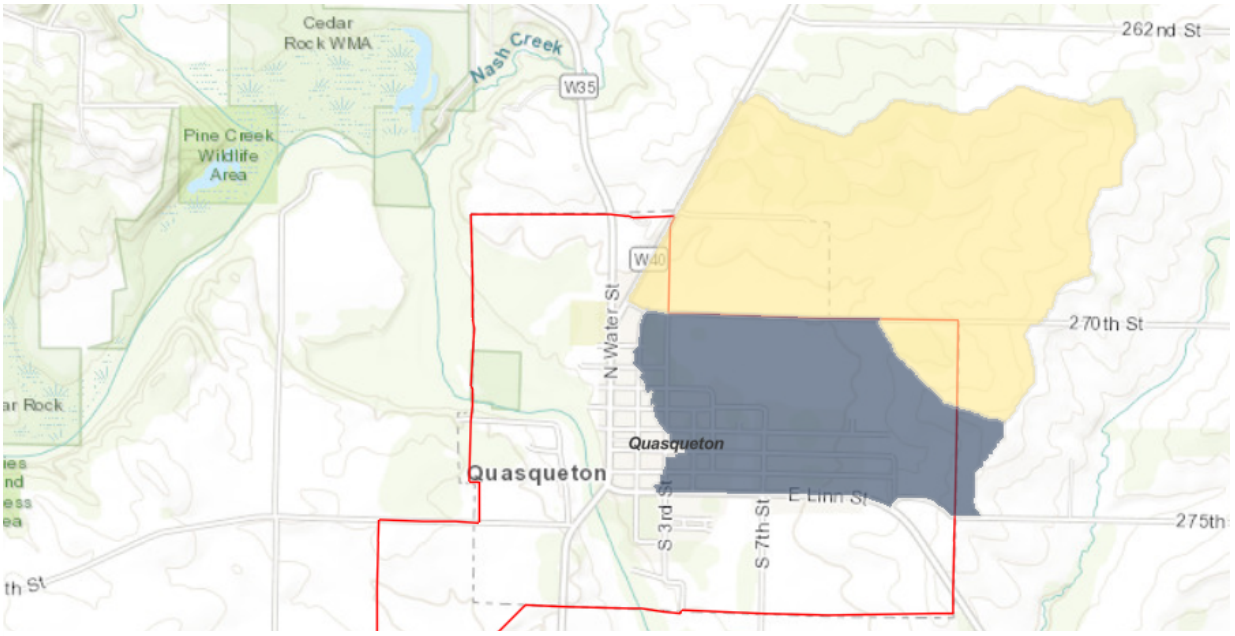


What is a Watershed?

A watershed is an area of land in which all surface water flows to the same outlet. Watersheds come in sizes as large as the Mississippi River or as small as a street culvert.

The Upper Wapsipinicon River Watershed stretches from Southeastern Minnesota to Anamosa, Iowa. It encompasses just over a million acres, touching 11 counties and 27 communities.

As a part of the Iowa Watershed Approach Project, Northeast Iowa RC&D and the Upper Wapsi Watershed Management Authority developed a long-term Upper Wapsipinicon River Watershed Resiliency Plan. To learn more about the watershed and to view the interactive online Plan visit www.upperwapsi.org



Flooding in Quasqueton

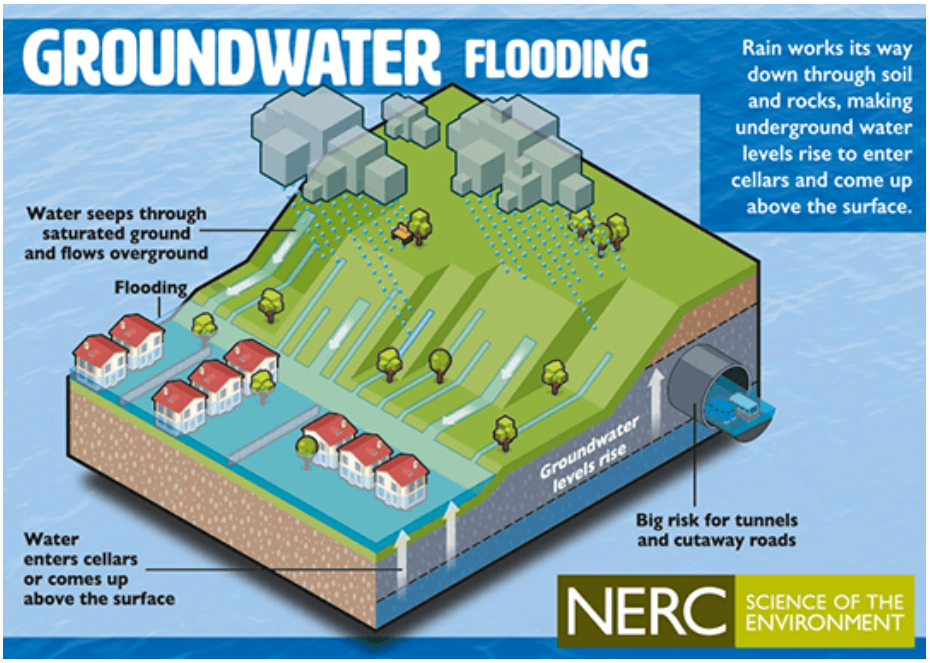
Although the Wapsipinicon River is the most prominent water body in Quasqueton, the community is largely affected by two smaller drainage areas that flow into the community.

Flood events in Quasqueton are caused by runoff from upland areas and a rising water table. Project planners found that the rising water table is often misunderstood by Quasqueton residents, who refer to it as Quasky's underground lake.

One resident explained that they have never experienced flooding via the Wapsipinicon river.

> "The river did not flood us the river has never flooded the town. We've lived in this town for seventy five

years and never have seen the town flooded from the river. "



A water table is defined as the boundary between the soil and the point at which the soil is completely saturated with water. Commonly the water table is associated with the groundwater level. As the Wapsipinicon River levels rise and rain infiltrates into the ground, the water table rises and can be exposed on the surface, in people's basements and crawl spaces. This type of flooding can last many days and weeks.

"We get water in our basement. Usually 2 to 3 inches, but have had as much as 2 feet. The water comes from hydrostatic ground pressure and can last up to 3 months. There is an underground lake under our house. It sits usually at about 15 feet in the ground, but when we get too much rain it rises up and enters our basement."

Community Flood Impacts

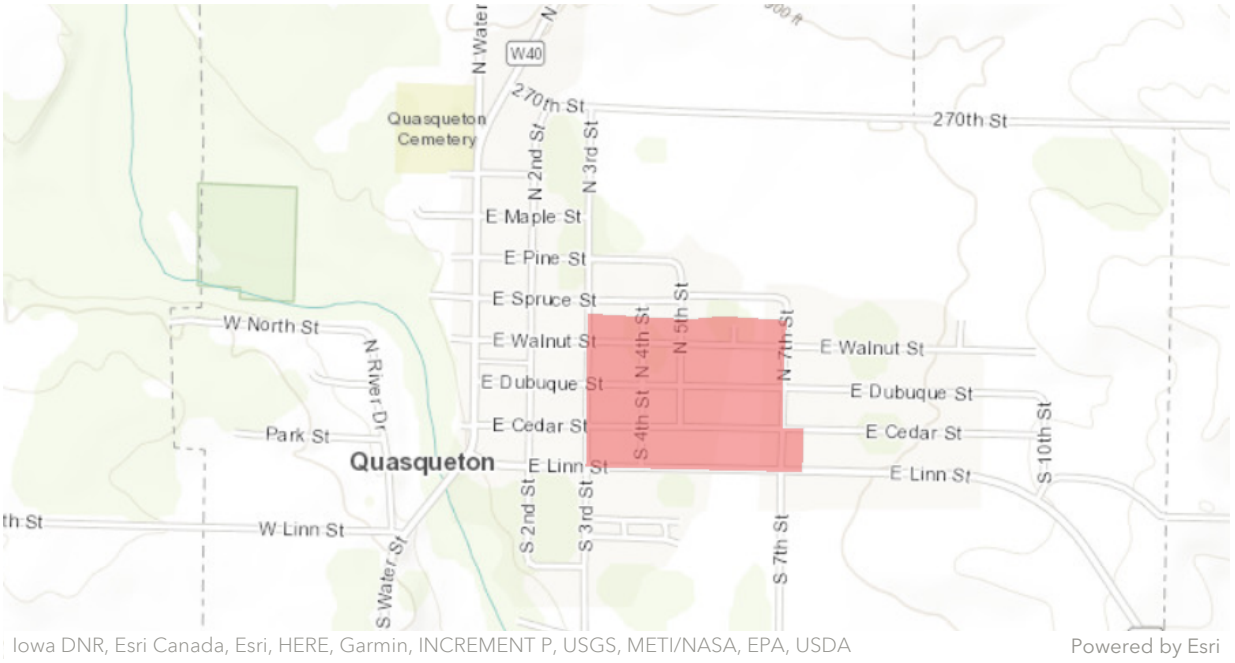
The impact of any individual flood event in the community of Quasky is dynamic and complicated. It can include loss of life, direct and indirect economic loss and stressors, social, psychological, and cultural impacts, public and private physical infrastructure degradation or loss, property damage or loss, and business loss. There are also direct and indirect costs associated with clean up and disposal of flood waste, including damaged private and public infrastructure and debris that has been carried downstream. Some of these impacts can be, and are measured or estimated by citizens, municipalities, counties, Iowa or the federal government. Unfortunately, most are never quantified, but take a toll on the impacted population. As a result, the total impact of flooding is poorly understood and rarely accurately measured.

Results from the Vulnerable Population Survey showed that surveyed residents spend between $10,000 and $20,000 of their personal funds to clean up and recover from flooding in their homes. They also indicated an average of $2,000 lost or spent on indirect costs, such as not being able to get to work or loss of utilities.

One resident explained the repairs they had to make to their home due to flood damages. Often residents are making these repairs on an annual basis.

> “
>
> "Duct replaced twice plus cleaning cost. Redo well,

pressure tank, wiring, well pit flooded . Crawl space flooded to flood joist, garage fills full of 2 feet of water drive washes, barn floods, washed out landscaping. Major cleaning up of everything to remove debris from flooding."



Flood Vulnerable Area

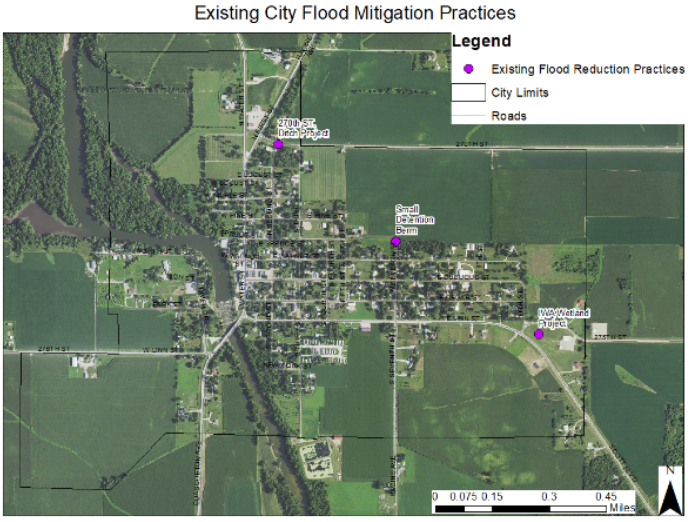
Meetings with Quasqueton City Mayor and Councilmen, resulted in the identification of a highly vulnerable area of Quasky to flash flooding. After further investigation using GIS elevation and flow data, it showed this area was vulnerable due to its geography, hydrology, and demographics. The area between 3rd street and 7th street (east to west), and between Walnut St. and Linn St (North to south), was highlighted as an area that often experiences damage due to flash flooding and a rising water table.

According to elevation data, this area is located in a “low spot.” When rain events occur, overland flow comes from the north and east, and collects in this low spot until it can infiltrate into the ground or flow into the Wapsipinicon River via the city’s storm sewer. In addition to overland flow, the water table in this area can be exposed on the surface and in resident’s basements and crawl spaces leaving little room for infiltration of water from overland flow.

One resident acknowledged this "low spot" and the underground

flooding that occurs in the community. He said,

> "Basement flooded four inches, or 1-2 feet to six feet deep! Stays a long time until ground under surface level drops. This is the lowest spot east side Quasqueton was a swamp in Historical times. Basement walls were collapsed and rebuilt sometime 70's or 80's. Furnace and water heater were moved from basement to 1st floor approx 1995. After last major surface water flood, I had to move 200 amp electrical panel up to 1st floor level. it had been submerged."



Creating Flood Resiliency in Quasqueton

Historically, the community and its residents have implemented innovative strategies that work to mitigate flash flooding within the community.

Re-direct Runoff

The City implemented a culvert system located north of 270th St. that collects and diverts overland flow from approximately 300 acres of farmland along the road, flowing east to the Wapsipinicon River Watershed. Before these alterations were implemented, water flowed through a culvert under 270th St. into the city of Quasqueton.

Infiltrate Runoff

In 2020 a small wetland was constructed on the east side of town at the intersection of county Road D47 (Linn St.) and 275th St (Pictured right).The wetland was constructed using funds from the Iowa Watersheds Approach Project in partnership with the Upper Wapsipinicon River Watershed Management Authority. The wetland drains 10 acres of developed and cropped lands, and has a peak flow reduction of 46.8% during a 100-yr or 6.6 inch rainfall event. According to the Mayor of Quasqueton, the installation of this wetland has greatly reduced flows that would have previously washed out residents driveways and yards during large rain events.

Modifications by Residents

Many residents living in the vulnerable flood area have made alterations to their homes to reduce the impact of flooding. Many have moved electrical, heating and cooling, and water heaters out

of the basement levels and onto the main floor, and have installed pumps that keep water from entering their basements. Despite these modifications, they do very little in preventing floods from occurring in the community. Comments received in the Vulnerable Resident Survey, and those collected from city mayor and council members, said that many residents expect flooding every year and it has just become a part of their lives.

Seeing Eye to Eye

Unfortunately, many residents do not agree that the city's actions have helped mitigate flooding in the community. One residents stated,

> "what was done 30-40 years ago and more recently has not adequately assessed, understood the situation."

Many residents commented that the community needs better maintenance of their ditches at the county and city level to ensure water can flow adequately through existing stormwater system. Many also wonder if the current stormwater and sewage system is the correct size to function properly during large rain and flash flood events.

Photo Courtesy of Rick Wolfekuhle, Buchanan County Emergency Manager

Check out the Quasqueton Flood Resiliency Action Plan to learn how the City and its residents can mitigate flooding in their community.