



Flood Resilience Action Plan

# **QUASQUETON**

IOWA  
2021



Flood Resilience Action Plan:

# QUASQUETON

## TABLE OF CONTENTS

### 01 INTRODUCTION

1. Watershed Resilience	04
2. Iowa Watershed Approach	04
3. Upper Wapsipinicon River	05
4. City of Quasqueton	06
5. Goals & Objectives	06

### 03 ACTION PLAN

1. Scenarios for Increased Infiltration & Reduced Runoff	22
2. Strategies for Outreach & Education	36

### 02 RESEARCH

1. Outreach	10
2. Vulnerability Assessment	12
3. Infrastructure Inventory	18

### 04 APPENDIX

1. Vulnerable Population Survey & Results
2. Potential Funding Sources for Implementation
3. Educational Fliers
4. References



Flood Resilience Action Plan:

# INTRODUCTION



Photo courtesy of Luther College Visual Media

Introduction:

# RESILIENCE IN COMMUNITY

the capacity of the City of Quasqueton and its residents to mitigate and respond to flooding in an efficient way so that they are less vulnerable in the future.

## *Watershed Resilience*

This plan defines resilience as the capacity of the City of Quasqueton and its residents to mitigate and respond to flooding in an efficient way so that they are less vulnerable in the future.

Quasqueton was selected for this project because of its historical experiences with river and flash flooding, along with their existing innovative strategies that make the community more resilient.

According to the Iowa Watershed Approach, "Flood resilient communities, like Quasqueton, understand that actions can reduce flood risk through mitigation, preparedness, response, and recovery. The IWA flood resilience programming will improve the use of social resources in watersheds by connecting local partners and stakeholders, enhancing the presence of social resources in watershed planning efforts, and increasing the awareness and communication of established and novel flood resilience initiatives."

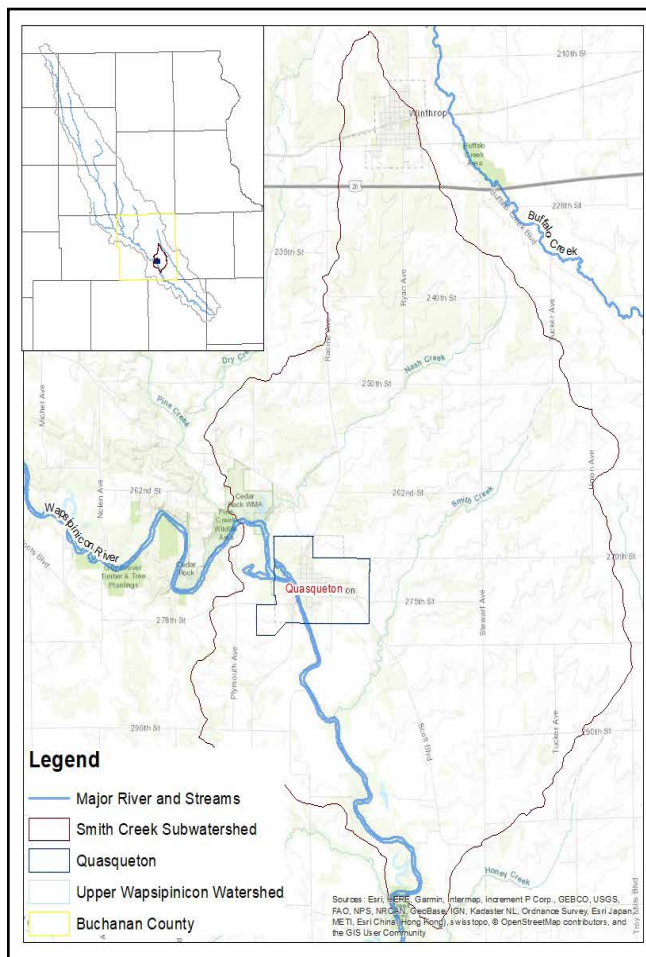
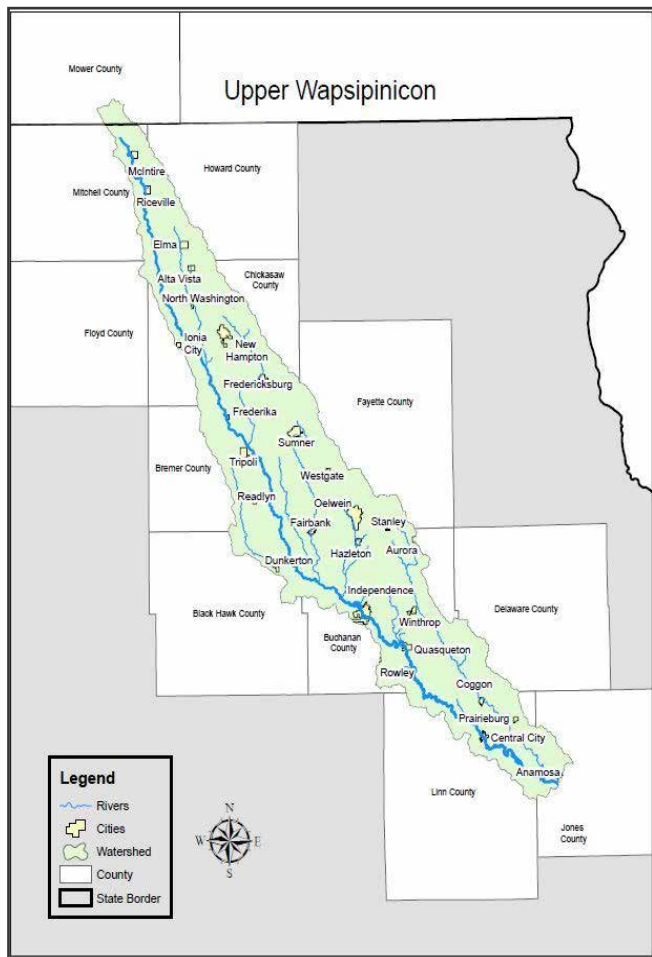


## *The Iowa Watershed Approach*

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

The IWA project includes leadership from the Iowa Flood Center (IFC), Iowa Department of Natural Resources, Iowa Homeland Security and Emergency Management, and local partners working together to reduce the impact of flooding in Iowa. Their mission is to create "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/>.





Maps courtesy of Northeast Iowa RC&D

### Upper Wapsipinicon River Watershed

The Upper Wapsipinicon River Watershed includes 1,003,356 acres extending from southeastern Minnesota through eastern Iowa to the City of Anamosa. Water quality and quantity in the Upper Wapsipinicon River Watershed are impacted by the management decisions and policies of many different private and public entities, including two states, 11 counties and 27 communities. Land use in the watershed is dominated by agricultural production, which utilizes more than 85% of the area. The river corridor consists of floodplain forests and wetlands, steep bluffs, public lands, and wildlife habitat and continues to be the focus of public acquisition, native habitat preservation and restoration, and natural resource-based recreation.

The Northeast Iowa RC&D Resiliency Planners developed, distributed, and analyzed a survey of landowners in the Upper Wapsipinicon River Watershed in July 2017. It revealed that over 40% of respondents are absentee landowners, living over 30 miles from the watershed. Over 25% of respondents reported



Figures courtesy of the Iowa Watershed Approach



having been directly impacted by flooding within the last five years and 85% agreed that flooding is a problem in the Upper Wapsipinicon River Watershed. Of the farm owners and operators surveyed, 79% indicated they were interested in receiving conservation planning assistance, with the potential for funding for adopting conservation practices on their land.

### ***City of Quasqueton***

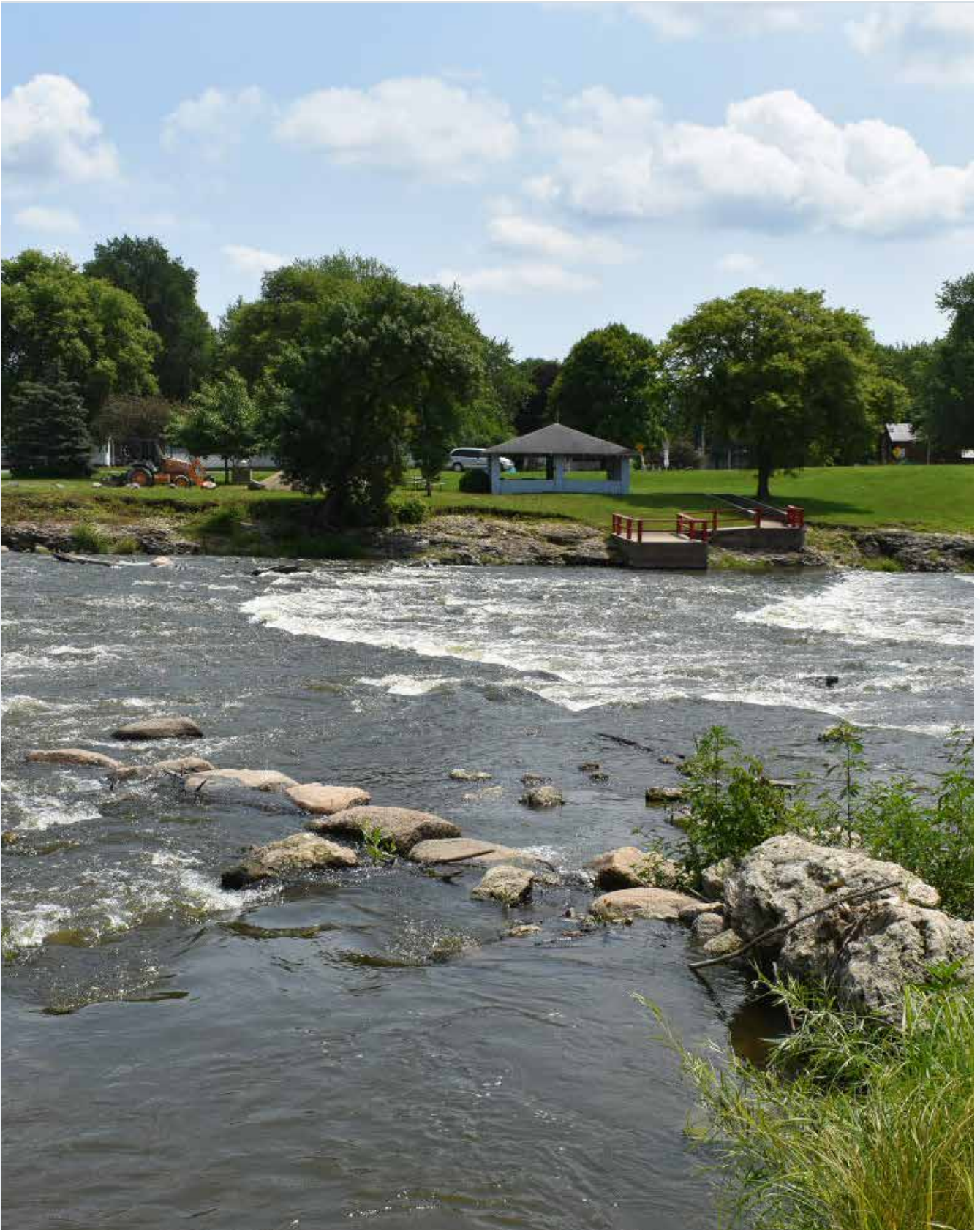
The City of Quasqueton, locally known as Quasky, is located in southeast Buchanan County, south of Highway 20 and the City of Winthrop. Quasky is a rural community of about 560 residents. Settled in 1842, it is the oldest town in Buchanan County. Quasqueton was named by the Native Americans that lived on the west side of the river and means ‘swift running water’ (Buchanan County Multi-Jurisdictional Hazard Mitigation Plan, 2017). The

Upper Wapsipinicon River intersects the middle of the community, providing many recreational and economic benefits, such as fishing, kayaking, and tubing. Unlike many river communities, Quasky experiences limited flooding from the river; instead, much of the flooding in Quasky is due to overland flow and a rising water table.

### ***Goals & Objectives***

The goal of the Quasqueton FRAP is to provide the City of Quasky with the tools and resources necessary to reduce social, economic, environmental and physical damages due to flooding, as well as to create a community with the knowledge and financial resources to mitigate and respond efficiently to flood events in the future. The Quasqueton FRAP identifies actions and resources available to address flooding and helps to leverage outside funding sources for the community.







Flood Resilience Action Plan:

# RESEARCH



Photo courtesy of Rick Wulfekuhle, Buchanan County Emergency Manager

# People Supporting People: **OUTREACH**

## assessing and creating a flood resilience community



### *Introduction*

The following section outlines target audiences, strategies, and partners used by Northeast Iowa RC&D Resiliency Planners in their development of the Quasqueton FRAP. The goal is to evaluate target audiences on their current level of resilience to flooding, role(s) in creating a more flood resilient community, and inform the methods within the 'ACTION' section of the Quasqueton FRAP.

### *Targeted Audiences: Community Leaders*

City officials, staff, board/commission members, business owners, and community leaders play an essential role in managing stormwater runoff from impervious urban surfaces. They set policy, manage development, and are responsible for city infrastructure. Stormwater management is most effective when it is fully integrated into city visioning and planning, requiring city managers, city street and utility departments, city parks and recreation officials, and other city leaders to gain enough understanding of stormwater practices to build them into initiatives.

Two-thirds of the cities in the watershed have fewer than one thousand residents. Many of them only have one or two part-time city employees and rely heavily on volunteer city councilors, mayors, and board/commission members to do important work within their cities. Outreach and education in communities of this size take on an uber-local approach that is responsive to the particular needs and concerns of residents. In Quasky, watershed leaders began planning by listing influential residents and organizations who could be potential partners.

Many community leaders in Quasky say advice from outside experts is valuable for planning and helps them sell projects within their communities. Community leaders are wary of resistance to change amongst residents. Effective education for community leaders will not only help them learn more about practices, but also provide them with strategies for raising awareness and openness within their towns.



### **Farmers & Landowners**

Farmers and rural landowners manage the majority of the land around Quasqueton and within the Upper Wapsipinicon River Watershed. Their farming operations and uptake of structural practices have an immense impact on the hydrology of the entire watershed. Farmers and landowners on the farthest edges of the watershed, uphill and upstream, are primary players in maintaining its health, but are often removed from the direct consequences of flooding.

### **Flood Vulnerable Community Members**

The Northeast Iowa RC&D Resiliency Planners met several times with the mayor and city council members to discuss areas in the community commonly impacted by flooding. Together, they identified a Flood Vulnerable Area (FVA) that experiences frequent flooding from overland flow and a rising water table. Residents living between 3rd Street and Racine Avenue were identified as particularly vulnerable, as they are largely composed of elderly individuals and families with children. Outreach to this audience is the most important because they are directly affected by flooding in the community and may not have the same resources to mitigate or respond to flood disasters. By providing resources and educating these residents on ways they can prepare for and respond to flooding, they will become more resilient in the future.

### **Local Partners**

Local partners are often key messengers in deploying education and outreach strategies. They have the trust of farmers and community leaders. Many are already

engaged in promoting watershed awareness and education within Quasqueton and the Upper Wapsipinicon Watershed.

The Northeast Iowa RC&D Resiliency Planners worked with a diverse, and sometimes unconventional, set of local partners active within the watershed. They have goals that overlap with city officials and engaging them in leadership may open doors to reach new audiences. Partners include, but are not limited to, the Upper Wapsipinicon River Watershed Management Authority Board; ISU Extension; Buchanan County; Buchanan County NRCS Office, SWCD, Conservation Board, and Tourism & Economic Development; local farmer organizations; representatives of local Pheasants Forever, Trout Unlimited, & Ducks Unlimited chapters; teachers & school staff; youth organizations; local businesses and media outlets.

### **Community At Large**

Other residents of Quasqueton, although not directly affected by flooding, experience indirect effects of flooding such as not being able to get to work or school. These residents also have a voice when making decisions within the community. This audience was not directly targeted during the planning process due to restrictions associated with the COVID-19 pandemic.

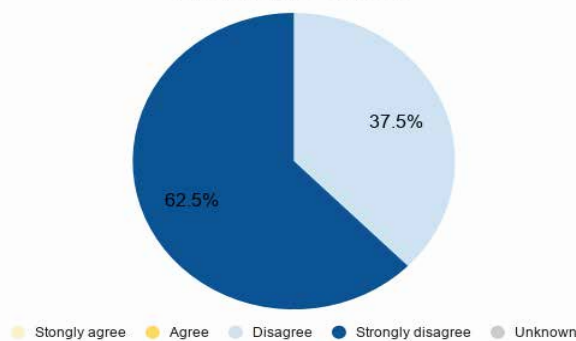
\*Due to the COVID-19 pandemic, Northeast Iowa RC&D Resiliency Planners were not able to host in-person public and other large group meetings. Community leaders also advised against using online and virtual meetings because of the demographics within the community. A large number of the population of Quasqueton is elderly or may not have internet capabilities. The pandemic lasted throughout the duration of the planning project.

## Building Resilience:

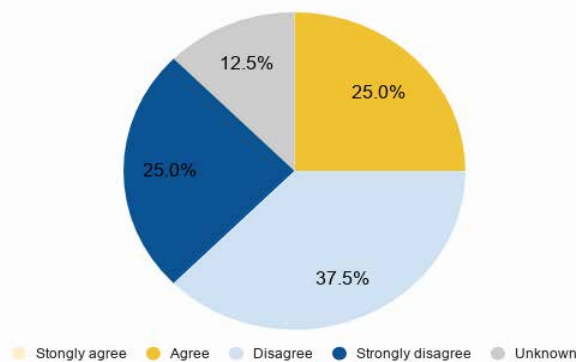
# VULNERABILITY ASSESSMENT

understanding flooding in the watershed and preparing for the future

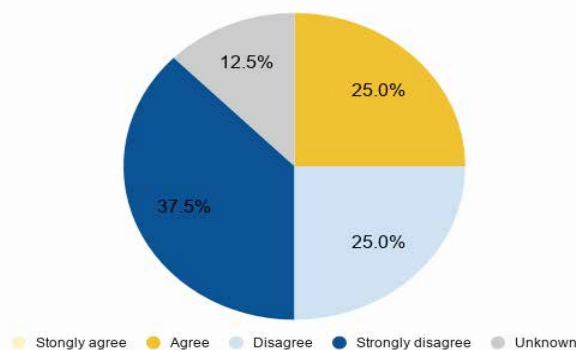
*Percentage of Residents Living in the Vulnerable Area That Feel the City of Quasqueton Has Done Enough to Adequately Mitigate Flooding in the Community*



*Percentage of Residents Living in the Vulnerable Area That Feel Buchanan County Has Done Enough to Adequately Mitigate Flooding in the County*



*Percentage of Residents Living in the Vulnerable Area That Feel the State of Iowa Has Adequately Done Enough to Mitigate Flooding Within the State*



## Flooding in Quasqueton

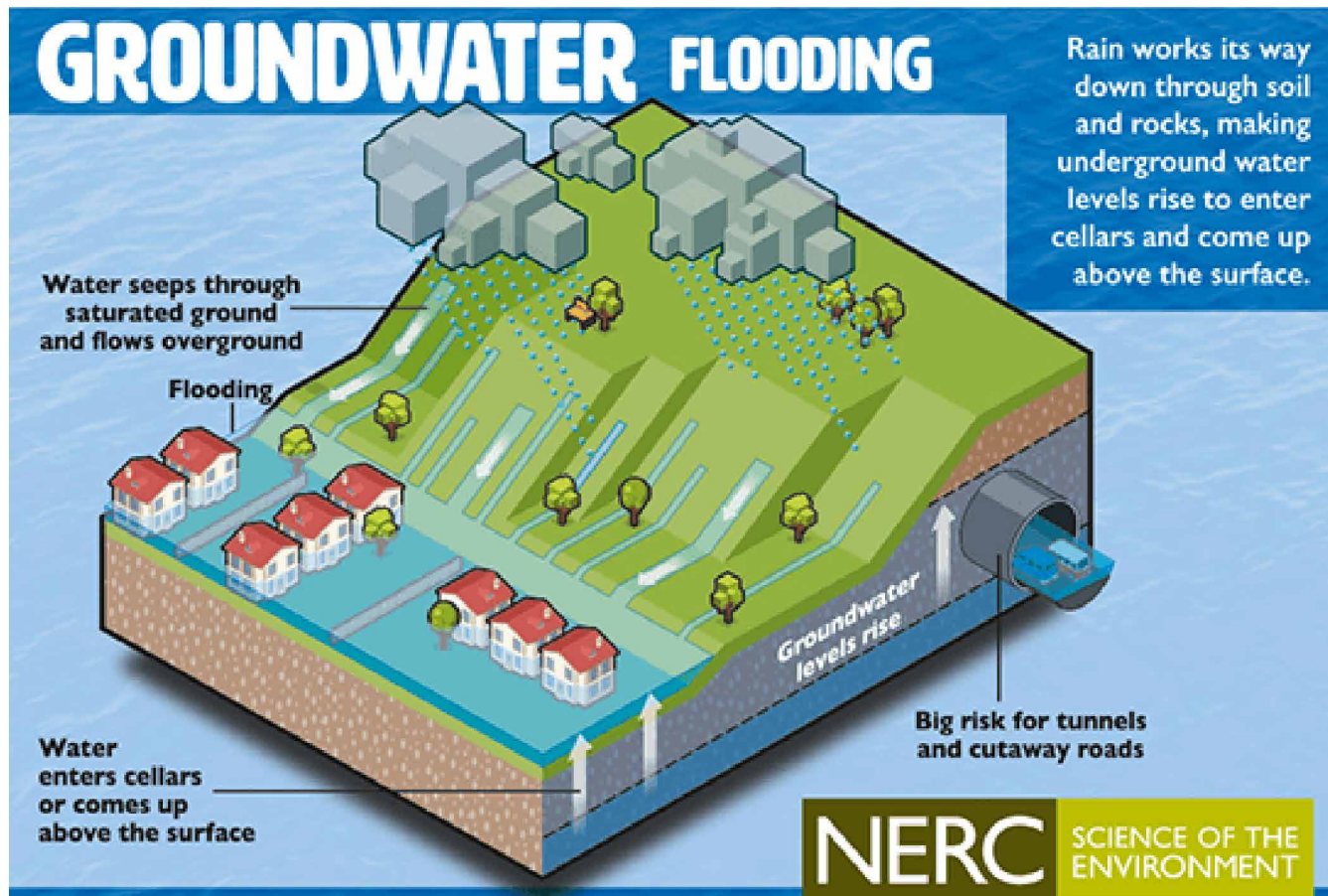
Understanding the climate and hydrology of the watershed, past flood events, flooding frequency, and precipitation trends, can help watershed residents and conservation planners to develop realistic goals and strategies to reduce future flooding and its economic, environmental and social impacts, especially on the most vulnerable populations.

Unlike many river communities, Quasky experiences few flood events from the Upper Wapsipinicon River, as it only floods during major 100 or 500 year rain events. Because of rain and stream gauges upstream, the community usually has ample warning before these flood events occur. The warning time is used to place sandbags at Veterans Memorial Campground and around other buildings commonly affected by major events. According to community leaders and residents, the community has not experienced major flooding from the river in the last several decades. Instead, much of the flooding in Quasky is due to overland flow and a rising water table. This is known as flash flooding.

The water table is defined as the boundary between the surface of the soil and the point at which the soil is completely saturated with water. Commonly, residents of Quasky referred to the water table as an "underground lake." As river levels rise and rain infiltrates into the ground, the water table rises, becoming exposed within basements, crawl spaces, and low-lying areas. Flash flooding and ground saturation is often difficult to predict, and therefore, hard for which to prepare.

The impact of any individual flood event in 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. Ecological impacts, such as water quality degradation, terrestrial and aquatic habitat loss, and soil/nutrient loss/loading can be significant. 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.

Charts courtesy of Northeast Iowa RC&D



Some of these impacts are measured or estimated by citizens, municipalities, counties, state or the federal governments, but unfortunately, most are never quantified. As a result, the total impact of flooding is poorly understood and rarely accurate.

According to the Buchanan County Hazard Mitigation Plan, the City of Quasky contains 95 buildings in the 100 year floodplain with an approximate value of \$3,475,000. Results from the Vulnerable Population Survey showed that residents in the FVA spent between \$10,000 and \$20,000 of their personal funds to recover from flooding in their homes. They also indicated an average of \$2,000 lost on indirect costs, such as not being able to get to work or loss of utilities. Even with these improvements, residents continue to express frustration with incurred costs associated with flooding.

### ***Vulnerable Population Survey***

The Northeast Iowa RC&D Resiliency Planners developed a Vulnerable Population Survey (VPS) that was distributed to residents living within the FVA. Informed by meetings with city officials and analysis of GIS elevation/flow data, the area was identified as vulnerable due to its geography, hydrology, and demographics. The survey was developed to collect information

about individual experiences, dollars spent on flood recovery, sources of those funds, and actions taken by community members to mitigate flooding in their home. As a “low-spot,” the area between 3rd Street and 7th Street (east to west), and between Walnut Street and Linn Street (north to south), was highlighted as an area that often experiences damage due to flash flooding and a rising water table. When rain events occur, overland flow comes from the north and east and collects until it can infiltrate into the ground or flow into the Upper Wapsipinicon River via the storm sewer. In addition, the water table in this area can become exposed in basements and crawl spaces, leaving little to no room for infiltration.

One week prior to delivery of the survey, a letter was sent to residents. The letter was from city officials explaining the Quasqueton FRAP project and methods for delivery. The survey was hand-delivered to 20 homes on January 16th, 2020 between 3:30pm and 5:00pm. If residents were not home the survey was placed in a noticeable area near the main door. In the letter, residents were encouraged to check their door during the delivery time frame. Exactly one week later, on January 23rd, 2020, the Northeast Iowa RC&D Resiliency Planners went back to collect surveys. Respondents were encouraged to attach completed surveys to their front door or place them in a noticeable area

## Estimated Financial Impact of Flood Damage for Residents Within the Vulnerable Area

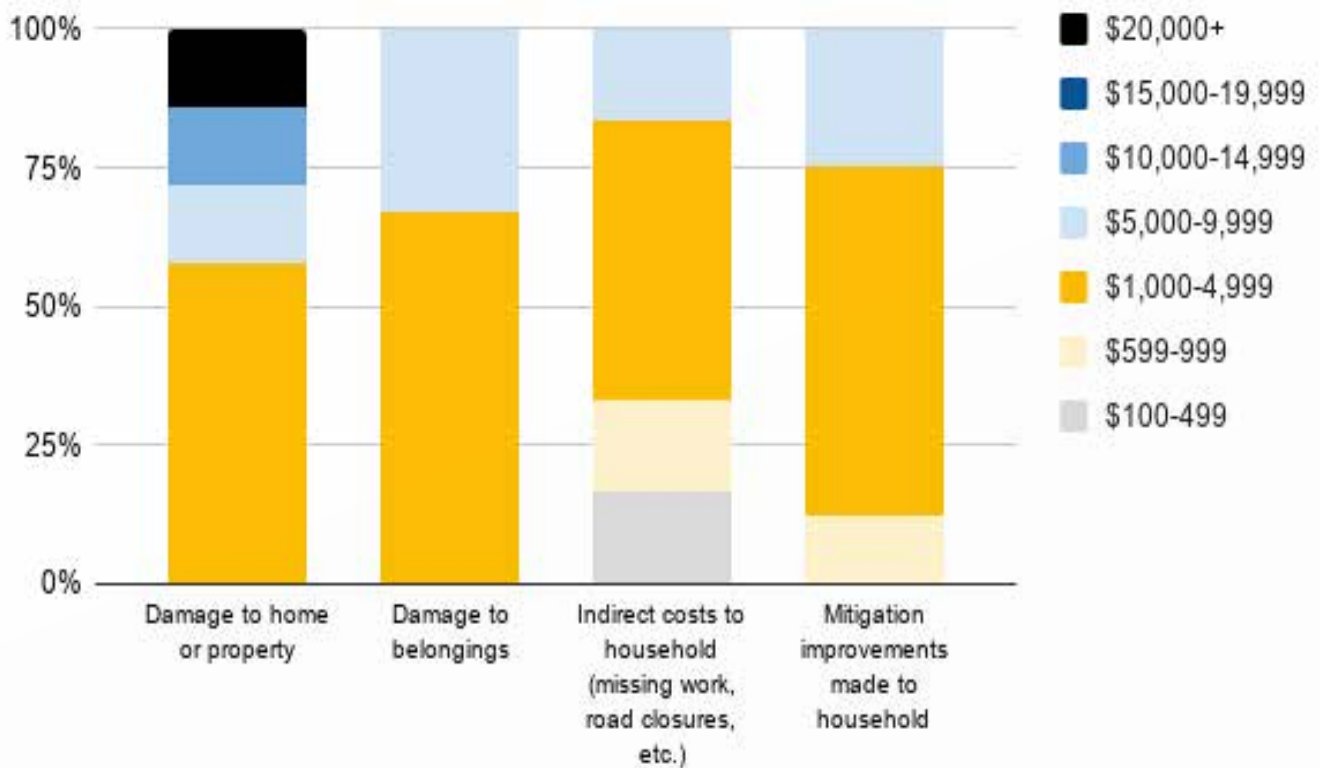


Chart courtesy of Northeast Iowa RC&D

outside their home. Fifty percent of surveys were filled out. See Appendix for more information on the results of the survey.

Results from VPS indicated a lack of communication and understanding between residents and city officials. Community members were uncertain about actions city officials had taken to protect the community from flooding, or reasons behind their actions during a flood event. City officials are interested in hearing more from residents about which actions should be implemented to mitigate flooding in the community.

### Vulnerable Population & Community Assets

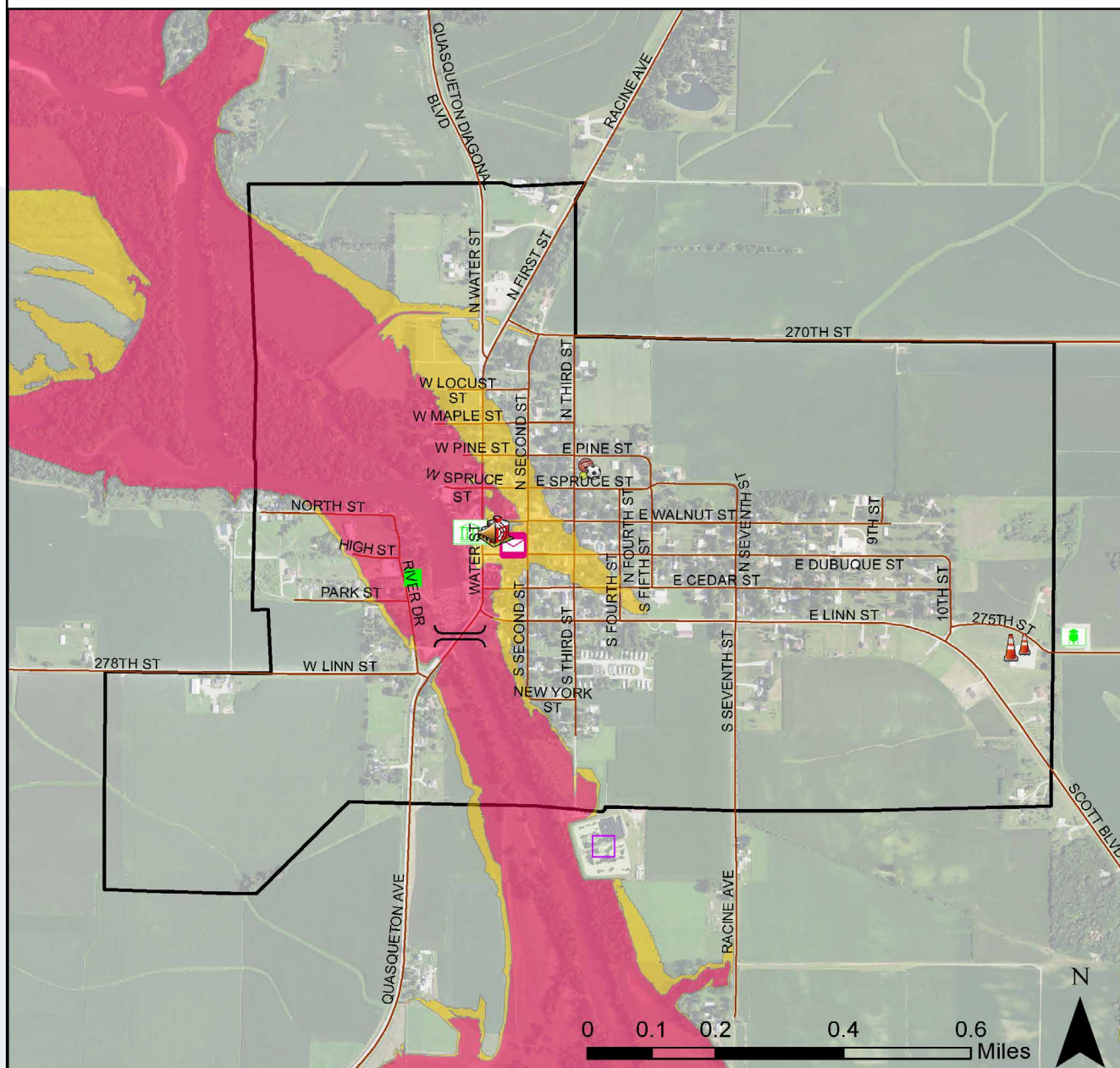
According to the Social Vulnerability Assessment completed by the IFC, Quaskey has a low-medium social vulnerability rating due to the following indicators: percent of children, percent of elderly, and the percent of renters living in the community. Results from the VPS correlate with

the demographic groups identified in the SVA. These populations are considered vulnerable because they may be less likely to have the knowledge, physical ability, or economic resources to defend against or recover from a flood disaster. Therefore, these populations need special attention or assistance during a flood event.

It is important for residents to know their vulnerability to flooding and the location of shelter services in the community. Several critical infrastructure facilities in Quaskey are located within the 100 year or 500 year floodplains. For example, the community storm shelter located at Veterans Memorial Park is within the 100 year floodplain. Critical sites that are located within the 500 year floodplain include the city hall, fire station, and post office. City officials have not investigated moving critical infrastructure out of the 500 year floodplain because the community has not experienced any issues with flooding of these structures in the past.



## Quasqueton Critical Sites Vulnerable to Flooding



### Legend

#### Critical Sites

#### Type


- |   |                  |   |                  |   |                   |
|---|------------------|---|------------------|---|-------------------|
|  | Post Office      |  | Sports Complex   |  | City Limits       |
|  | Road Maintenance |  | Storm Shelter    |  | Roads             |
|  | Bridge           |  | Water Tower      |  | 100-yr Flood Area |
|  | City Hall        |  | Sewage Treatment |  | 500-yr Flood Area |
|  | Fire Station     |  | Siren            |   |                   |



## Chapter 2 - Stormwater

## Section 2B-2 - Rainfall and Runoff Periods

**Table 2B-2.04: Section 3 - Northeast Iowa**  
*Rainfall Depth and Intensity for Various Return Periods*

	Return Period															
	1 year		2 year		5 year		10 year		25 year		50 year		100 year		500 year	
Duration	D	I	D	I	D	I	D	I	D	I	D	I	D	I	D	I
5 min	0.38	4.66	0.45	5.47	0.56	6.76	0.65	7.86	0.78	9.42	0.88	10.5	0.98	11.8	1.22	14.7
10 min	0.56	3.40	0.66	4.00	0.82	4.94	0.96	5.76	1.14	6.89	1.29	7.75	1.44	8.64	1.79	10.7
15 min	0.69	2.77	0.81	3.24	1.00	4.02	1.17	4.68	1.40	5.60	1.57	6.31	1.75	7.03	2.19	8.77
30 min	0.96	1.93	1.14	2.28	1.41	2.83	1.65	3.31	1.98	3.96	2.23	4.47	2.49	4.98	3.10	6.20
1 hr	1.25	1.25	1.47	1.47	1.85	1.85	2.17	2.17	2.64	2.64	3.01	3.01	3.39	3.39	4.34	4.34
2 hr	1.53	0.76	1.81	0.90	2.28	1.14	2.70	1.35	3.30	1.65	3.79	1.89	4.30	2.15	5.58	2.79
3 hr	1.71	0.57	2.01	0.67	2.55	0.85	3.03	1.01	3.74	1.24	4.32	1.44	4.94	1.64	6.55	2.18
6 hr	2.01	0.33	2.36	0.39	2.98	0.49	3.56	0.59	4.43	0.73	5.17	0.86	5.97	0.99	8.07	1.34
12 hr	2.32	0.19	2.69	0.22	3.38	0.28	4.02	0.33	5.02	0.41	5.86	0.48	6.79	0.56	9.25	0.77
24 hr	2.63	0.10	3.04	0.12	3.78	0.15	4.48	0.18	5.56	0.23	6.48	0.27	7.48	0.31	10.1	0.42
48 hr	3.00	0.06	3.44	0.07	4.23	0.08	4.98	0.10	6.12	0.12	7.10	0.14	8.15	0.16	10.9	0.22
3 day	3.28	0.04	3.73	0.05	4.56	0.06	5.32	0.07	6.49	0.09	7.48	0.10	8.56	0.11	11.4	0.15
4 day	3.53	0.03	4.00	0.04	4.85	0.05	5.64	0.05	6.84	0.07	7.86	0.08	8.95	0.09	11.8	0.12
7 day	4.17	0.02	4.72	0.02	5.70	0.03	6.58	0.03	7.87	0.04	8.95	0.05	10.1	0.06	13.0	0.07
10 day	4.76	0.01	5.38	0.02	6.45	0.02	7.39	0.03	8.77	0.03	9.90	0.04	11.0	0.04	14.0	0.05

D = Total depth of rainfall for given storm duration (inches)

I = Rainfall intensity for given storm duration (inches/hour)

## Flood Recurrence Interval

Table courtesy of Iowa SUDAS Design Manual

In order to understand flooding in Quasqueton it is important to understand precipitation trends in Iowa and flood recurrence intervals. The Federal Emergency Management Agency characterizes flood severity based on recurrence interval - the probability that they will occur in any given year. For example, a ten year flood event has a 10% chance; a 100 year flood has a 1% chance; and a 500-year flood has a 0.2% chance of occurring during any given year. Although there is a correlation, the recurrence interval does not indicate the actual force or velocity of the floodwaters for any given occurrence. An increase of precipitation event intensity means the probability of an occurrence of a 500 year flood is higher as well.

It is interesting to note that while mean precipitation totals have not significantly changed in the last 50 years, research shows the intensity of individual precipitation events has increased and is trending upward. The Upper Wapsipinicon River Hydrologic Assessment completed by the IFC notes the following:

“Heavy rainfall is increasing in intensity and frequency across the United States and globally and is expected to continue to increase over the next few decades, annual average temperatures are expected to rise by about 2.5°F for the United States, relative to the recent past (average from 1976–2005), under all plausible future climate scenarios.” Climate scientists predict precipitation intensity to continue increasing to levels 10-13% higher by mid-century (2050) and 11-20% by the end of the current century (2100).”

It is important for Quasqueton residents and community leaders to understand this concept in order to plan for and implement structures that can withstand flood events that are larger, as a 500 year flood in 2008 may now be smaller than a 500 year flood today.

For more information regarding flood vulnerability in the Upper Wapsipinicon River Watershed and across the state of Iowa, please visit: <https://iwa.iowawis.org/app/>.

Taking stock:

# INFRASTRUCTURE INVENTORY

innovative strategies that have mitigated flash flooding within the community

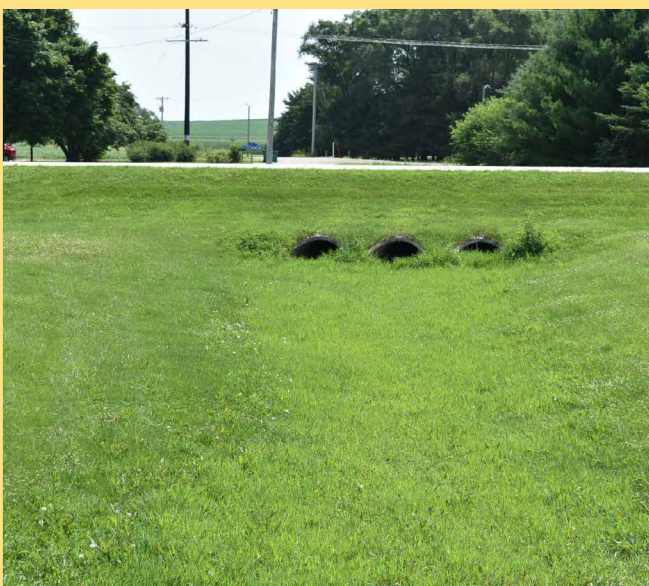


## *Flood Mitigation Infrastructure Inventory*

The City of Quasky has installed several flood mitigation structures in an effort to slow and direct water coming through the community. These include the following projects:

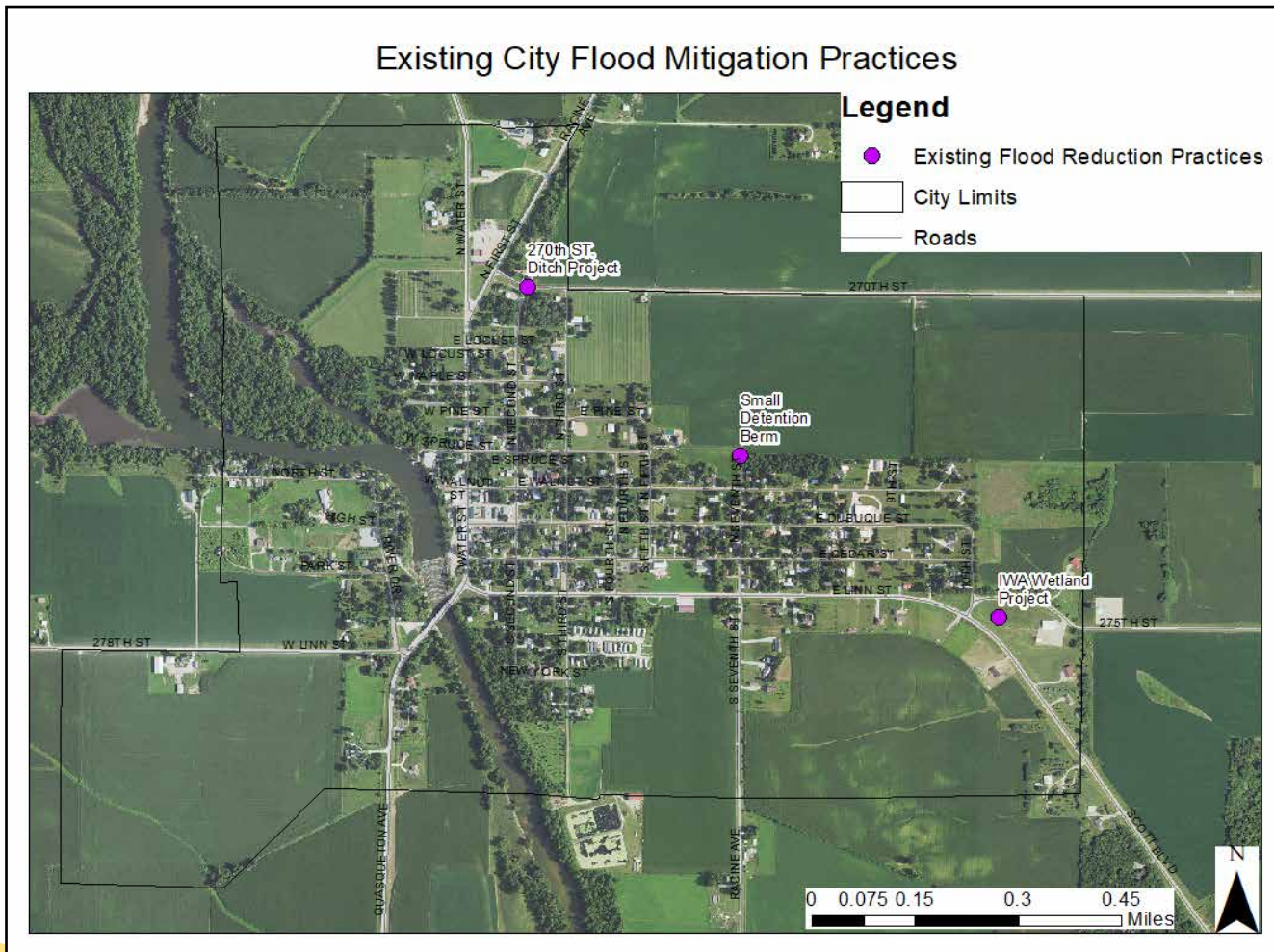
### *IWA Wetland Project*

In 2020, a small wetland located on the east side of town at the intersection of County Road D47 and 275th Street. The wetland was constructed using funds from the IWA 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 year or 6.6 inch rainfall event. According to the mayor, the installation of the wetland has greatly reduced flows that would have previously washed out residents' driveways and yards.



### *270th Street Ditch Project*

City officials implemented a culvert system to divert runoff water from approximately 300 acres north of 270th Street to the Upper Wapsipinicon River. City officials and Buchanan County implemented this drainage system to protect the city from flash flooding associated with runoff from this area. Although this project works to protect Quasky from flash flooding, it does not protect downstream infrastructure from flooding by the Upper Wapsipinicon River. Since its implementation, city officials stated that 270th Street had only been over-topped with runoff water once, due to an obstruction of debris that caused the ditch system to fail. When this system becomes obstructed during heavy rainfall events, water flows over-top 270th Street and travels through the FVA as seen on the map on page 15.



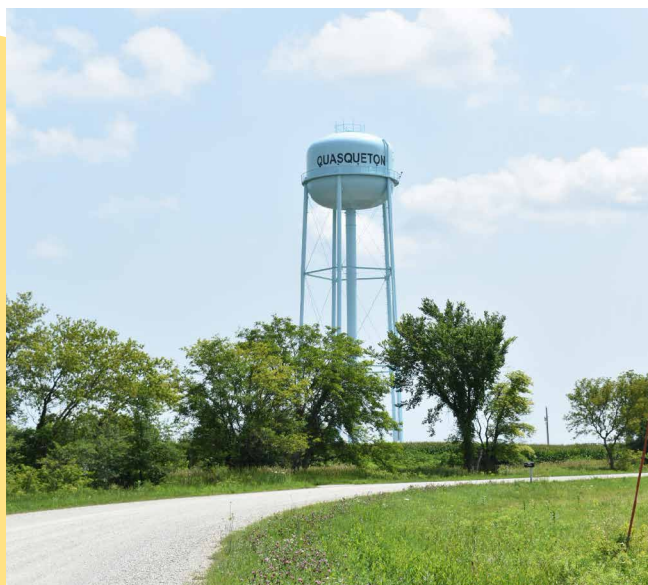
### Detention Berm

Map courtesy of Northeast Iowa RC&D

A small detention berm was installed at the northern end of Racine Avenue to mitigate overland flow from the northeast. The berm works to slow runoff from approximately 60 acres. Currently, this berm has been working well, but it may not be built to withstand large 100 year storms that are most threatening to the area.

### Residential Improvements

Many residents have made alterations to their homes to reduce the impact of flooding. They have moved electrical, heating and cooling, and water heaters out of basement levels and onto the main floor, and installed pumps that keep water from entering their basements. While these modifications help to protect individual property, they do little to prevent flooding from occurring in the community. Comments received in the VPS, and those collected from the mayor and city council members, express that many residents now expect flooding every year.





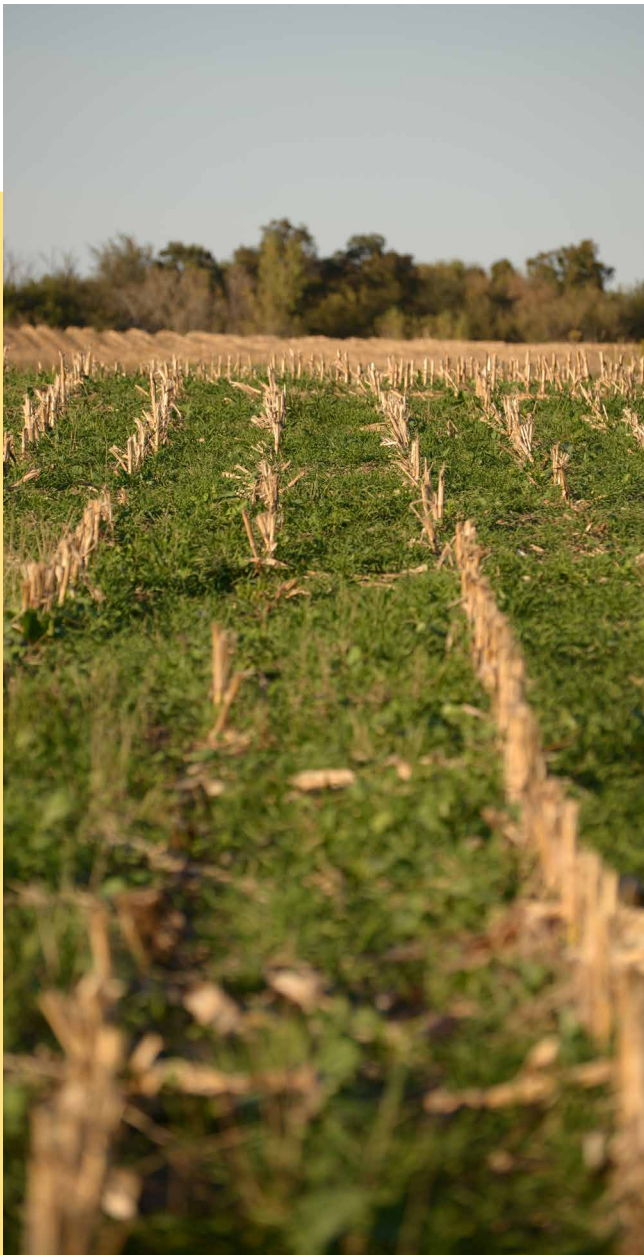
Flood Resilience Action Plan:

# **ACTION PLAN**



# Scenarios for **INCREASED INFILTRATION & REDUCED RUNOFF**

## methods for increasing flood resilience



### *Methods for Community Flood Resilience*

The Northeast Iowa RC&D Resiliency Planners utilized two methods for increasing community flood resilience in Quasky:

**1) Increase Infiltration and Reduce Runoff Through Implementation of Soil Health, Detention Structures, and Other Conservation BMPs on Upland Agricultural Lands**

**2) Management and Outreach for Residents of Quasqueton and Neighboring Watershed Stewards**

Each method works to close the communication barrier between city officials and community members, while also continuing to reduce flooding in the community.

### *Increase Infiltration & Reduce Runoff Through Implementation of Soil Health, Detention Structures, and Other BMPs on Upland Agricultural Lands*

Using information gathered from GIS analysis, the VPS, meetings with community leaders, and other analysis the Northeast Iowa RC&D Resiliency Planners developed three scenarios to Increase Infiltration and Reduce Runoff using Best Management Practices (BMPs) in Quasky.

Agricultural fields to the north and east of Quasky continue to contribute large amounts of runoff water and corn debris to the community. As explained above, over 400 acres of agricultural drainage land is diverted through a ditch and culvert system north of 270th Street to the Upper Wapsipinicon River. This culvert system functions properly when it is kept clear of corn stalks, other plant material, and debris. If the system becomes obstructed, or a large 500 year rainfall event occurs, water flows over 270th Street and into the city. Even with this culvert structure, Quasky is still impacted by about 60 acres of agricultural land south of 270th Street.

The Northeast Iowa RC&D Resiliency Planners specifically analyzed the 60 acres northeast of Quasky and south of 270th Street.





Currently, this land is under private ownership, but city officials have investigated the purchase of this land for residential development and implementation of a flood reduction detention structure. The Northeast Iowa RC&D Resiliency Planners also facilitated discussions with the private landowner about implementing a variety of soil health practices that would increase infiltration of water and limit the amount of runoff that enters the city.

The following scenarios, along with the included strategies for Mitigation Management and Outreach, will provide the City of Quasqueton with the tools and resources necessary to reduce the social, economic, environmental, and physical damages often caused by flooding and create a more flood resilient community.

### ***Scenario One: Infiltration Practices for Private Lands***

Private landowners can increase infiltration of water by implementing on-site practices that enhance soil health, reduce runoff, and increase water holding capacity in agricultural fields. Although the area directly north of Quasqueton

is demonstrated in the included scenarios, implementation of Scenario One is most effective if completed throughout the Smith Creek and Upper Wapsipinicon River watersheds.

### ***Cover Crops & No-till***

Cover crops are planted between cash crop seasons in order to keep cover on the ground all year long. They provide vegetative cover during the dormant winter months and are harvested or terminated in the spring so the next crop can grow. Using cover crops along with a no-till management strategy increases organic matter in the soil and reduces soil disturbance, which improves soil health and overall productivity. This management system also improves water holding capacity of the soil. According to the Upper Wapsipinicon River Watershed Hydrologic Assessment, implementation of cover crops and no-till on the entire field has the potential to reduce flooding by 17%-22% during a rainfall event. Cover crops and no-till are a great management system that improves soil health and water holding capacity without taking any land out of production.





### ***Multi-cropping***

Multi-cropping is a form of regenerative agriculture which includes relay-cropping, poly-cropping, double-cropping, or inter-cropping. More generally, multi-cropping is a practice of growing more than one crop in the same growing season on the same section of land. Multi-cropping adds diversity to crop rotations, creates additional economic opportunities, reduces input costs and weed pressure, mimics nature, builds soil health, and more.

### ***Native Perennial Vegetation***

Native perennial vegetation is the practice of establishing and maintaining the permanent vegetative cover of native grasses, legumes, and forbs. This practice can be done by taking a whole field out of production or strategically identified portions of a field that do not produce economically. Federal programs such as the Conservation Reserve Program (CRP) provide financial and technical assistance for landowners who want to incorporate perennial vegetation onto their land. Implementing perennial vegetation practices reduces soil erosion and sedimentation in streams and lakes, improves water quality, establishes wildlife habitat, and enhances forest and wetland resources. The CRP program encourages farmers

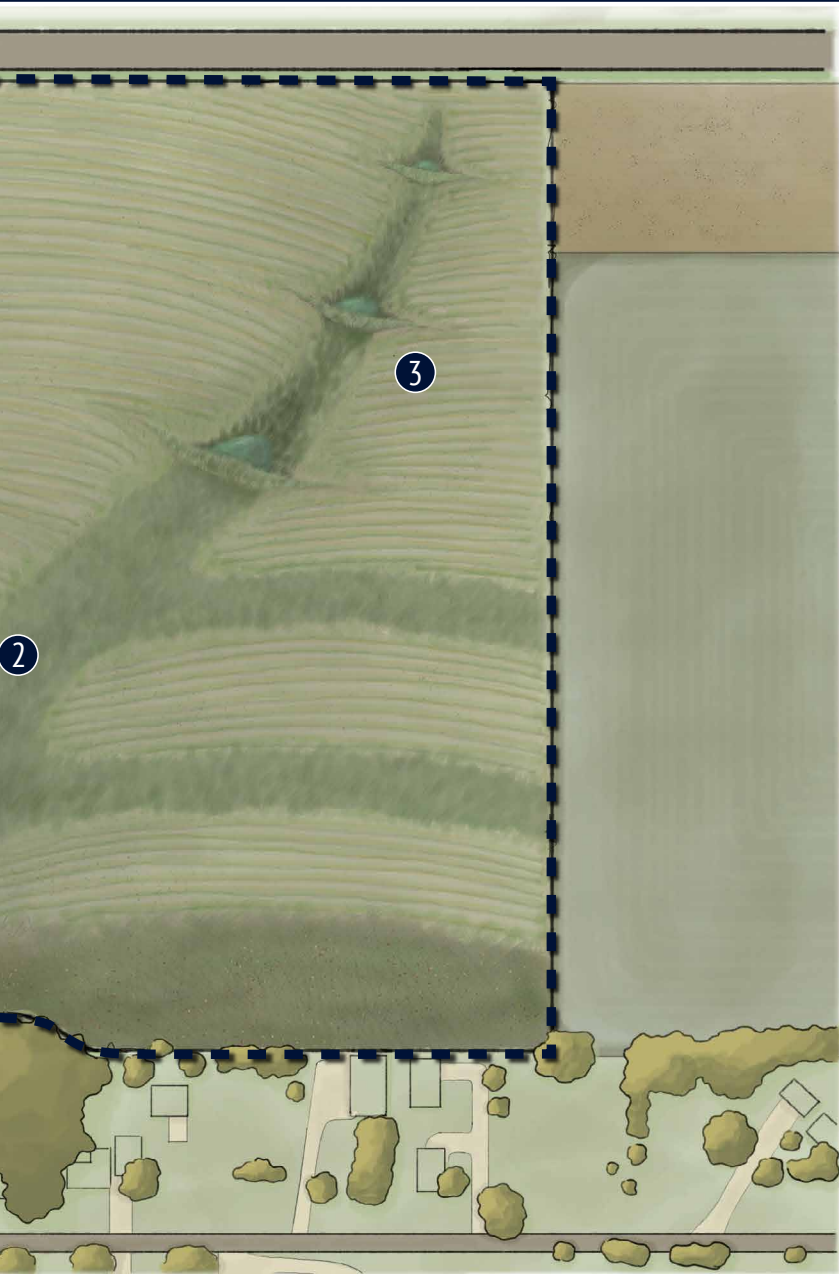
to convert highly erodible cropland or other environmentally sensitive acreage to vegetative cover, such as grasses, wildlife plantings, filterstrips, or riparian buffers. Farmers receive an annual rental payment for the term of the multi-year contract. Cost sharing is provided to establish the vegetative cover practices. Practices that can be eligible for CRP or other federally funded programs include: contour buffer strips (strips of grass or a mixture of grasses and legumes that run with the contour of the crop field), prairie strips (strips of native grasses, legumes, and forbs that run with the contour of a crop field. They alternate down the slope of a field with wider cropped strips), and grass waterways (constructed channels that are planted to grass or other suitable permanent vegetation to convey water to a stable outlet from a crop field).

According to the Upper Wapsipinicon River Watershed Hydrologic Assessment, implementation of native perennial vegetation on an entire field has the potential to reduce flooding by around 50% during a rainfall event. The deep root system of native prairie grasses allow a high volume of rainfall to infiltrate in the ground. They also work to improve the composition of degraded soils, so that the soil also can infiltrate a higher volume of water.

# Scenario One:

## Infiltration Practices for Private Lands





### 1 Crop field using Cover Crop & No-Till Management Practice

Using cover crops along with a no-till management strategy, increases organic matter within the soil and reduces soil disturbance, thus improving its health and overall productivity. They also increase water retention within the soil. These management systems will help reduce runoff entering the city of Quasqueton and will improve the water quality of the Upper Wapsipinicon River.

### 2 Grass Waterways

Grass waterways help to direct runoff from the agricultural field along a designated flow path of perennial grasses. They help prevent erosion and filter out pollutants/sediment before entering the City of Quasqueton.

### 3 Water and Sediment Control Basin (WASCOB)

These ordered, stepwise basins slow runoff water during large rain events. This action settles out crop residue and debris within the runoff that could potentially plug culverts or other constricted flow areas before entering the City of Quasqueton. They also prevent flash flooding by reducing increased runoff caused by intense rain events.

### 4 Prairie Buffer Strip

Prairie buffer strips work to intercept runoff and eroded soil from the cropped acres, preventing it from flowing directly into the City of Quasqueton and the Upper Wapsipinicon River.

### 5 Prairie Strip

Prairie strips are aligned with the contours of the crop field. Prairie strips implemented on just 10% of a field can collect and treat runoff from the remaining 90% of cropped acres. The native grasses and forbs also provide habitat for pollinators, like the monarch butterfly, and other species.

--- Property Boundary



## ***Scenario Two: Detention Practices for Private Lands***

Private landowners can also increase water holding capacity using detention structures to capture and hold runoff water from large rain events.

According to the IFC, the number of heavy 3+ inch rainfalls are becoming more frequent. Water detention practices hold water on the landscape by capturing runoff from heavy rainfall events before it enters a stream or river. These practices limit peak flows associated with flash floods. Water detention practices can be implemented in an urban or rural area, and often offer multiple benefits in addition to flood reduction. Examples of detention structures are outlined below.

### ***Detention Ponds & Nutrient Removal Wetlands***

Detention ponds are designed to either permanently hold water (often called a “wet pond”) or temporarily for a short period of time (called a “dry pond”). Dry ponds that only hold water during large rainfall events or during spring snowmelt provide the most flood reduction benefits because they can hold a higher volume of runoff water. Wet ponds are farm ponds built with additional water volume capacity for large rainfall events, and provide additional recreational benefits, such as fishing and hunting. Wetlands provide areas that are permanently wet, as well as areas that

are only wet during large rain events and areas that remain dry. Wetlands are able to provide a large volume of flood storage and provide many different ecosystems for wildlife. They also filter a large amount of water, which greatly improves water quality.

### ***Water & Sediment Control Basins (WASCOB)***

A WASCOB is an embankment structure that collects runoff water at the bottom of a drainage area and slowly releases it allowing sediments and nutrients to filter out. They are much smaller than a detention pond, and are often built intersecting grass waterways to slow down runoff water that is flowing down the grass waterway channel. For the best flood reduction benefit, multiple WASCOBs can be built in a stepwise pattern to further slow runoff from large rainfall events. These structures hold water for only a short period of time, about 24 hours.

Implementation of a detention structure in the form of a pond, wetland, or WASCOB provides a large amount of flood storage and several water quality benefits. According to the Upper Wapsipinicon River Watershed Hydrologic Assessment, implementation of a detention structure has the potential to reduce flooding by between 5-15% across the watershed during a rainfall event. Locally, structures like this have been designed to reduce flash flows by between 30-50%. When these structures are partnered with perennial native vegetation the potential flood reduction increases. These practices could greatly reduce flash flooding in Quasky.



# Scenario Two:

## Detention Practices for Private Lands







### 1 Crop field using Cover Crop & No-Till Management Practices

Using cover crops along with a no-till management strategy, increases organic matter within the soil and reduces soil disturbance, thus improving its health and overall productivity. They also increase water retention within the soil. These management systems will help reduce runoff entering the city of Quasqueton and will improve the water quality of the Upper Wapsipinicon River.

### 2 Grass Waterways

Grass waterways help to direct runoff from the agricultural field along a designated flow path of perennial grasses. They help prevent erosion and filter out pollutants/sediment before entering the City of Quasqueton.

### 6 Detention Pond

The grass waterway leads into a detention pond or "dry pond." This pond only holds water during heavy rain events, providing a larger amount of flood storage than a typical farm pond. The runoff captured by this pond is slowly released, allowing sediment and other pollutants to settle before entering the City of Quasqueton.

### 7 Rock Chute Spillway

The detention pond includes a rock chute spillway, which displaces the water released from the detention pond, so that it does not cause erosion on the back side of the structure. It also provides one final opportunity for sediment to settle out of the runoff water before entering the City of Quasqueton's stormwater system.

### 8 Wetland

The wetland will help store and filter a large volume of stormwater runoff from the agricultural fields upstream of the City. This will reduce flash flooding through the town. The wetland will help remove sediment and nutrients entering the Wapsipinicon River. The wetland contains deep and shallow pools, which provides diverse ecosystems for a variety of wildlife.

### 9 Native Planting

All of the practices include perennial native vegetation buffers that provide additional water infiltration benefits. Native prairie or oak savannah are two examples of native plantings that provide water quality and quantity benefits, wildlife habitat, and aesthetic qualities. Deep root systems developed by permanent native vegetation helps to filter runoff, which reduces flash flooding downstream. Native vegetation also captures nutrients in runoff and reduces sediment carried in surface runoff.

--- Property Boundary





### ***Scenario Three: Recreation Enhancing Conservation Practices for Public Lands***

Public landowners can create an aesthetically pleasing recreational asset for the community of Quasky that also functions to increase flash flood storage and water holding capacity using detention structures and perennial vegetation practices.

#### ***Detention Ponds, Wetlands, & Native Planting for Recreation***

Wetlands and native plantings that provide flood protection and increase water holding capacity can be

coupled with recreational trails, fishing accesses, and nature viewing areas to create an aesthetically pleasing communal resource in Quasky. Such recreational facilities often attract future developers and home buyers.

These scenarios provide one solution to help mitigate/reduce flash flooding in the community. It is important to remember, they will not eliminate flooding in Quasky entirely. Due to the natural landscape, water table, and location of the community, flooding will continue to occur during large rainfall events. A combination of all strategies included in this plan will result in the greatest reduction of flash flooding.

# Scenario Three: Recreation Enhancing Conservation Plan



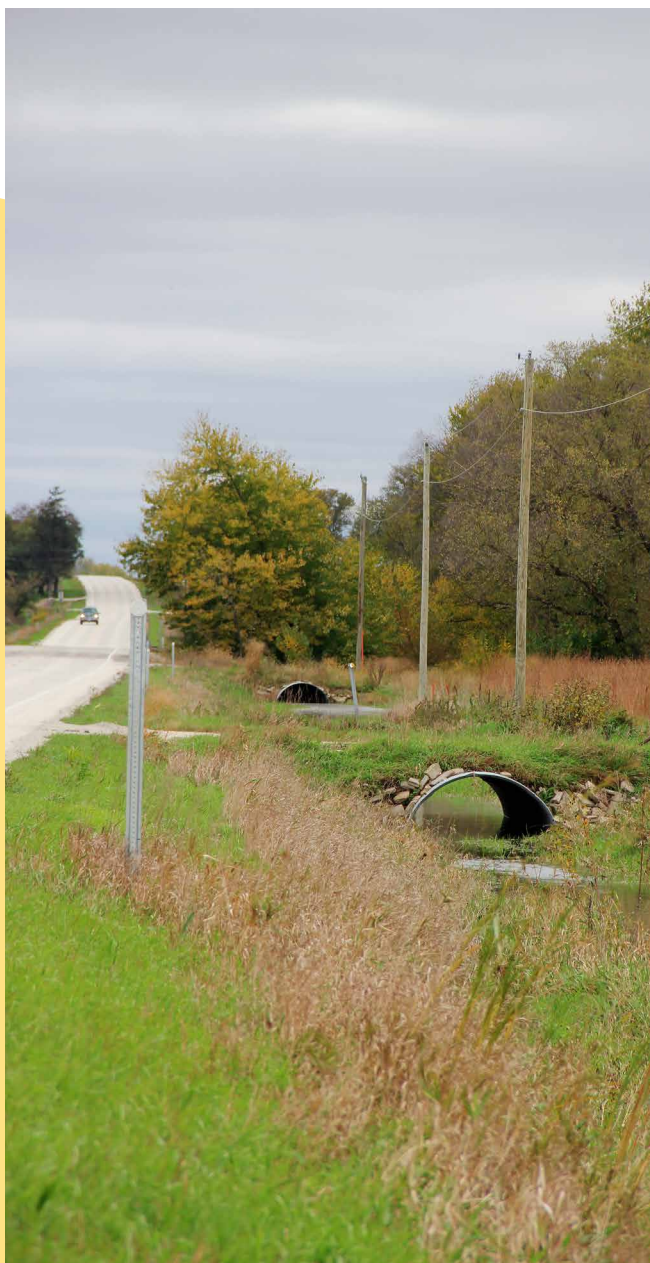
# Practices for Public Lands



- 1 Rock Chute Spillway**  
 An existing spillway located at the confluence of a tributary to the Wapsipicon River. It has the capacity to handle 100 cfs of flow. It is a concrete structure with a rock chute. It is located on the east side of the river.
  - 2 Wetland**  
 A wetland area located on the east side of the river. It is a natural area with a variety of plants and animals. It is located on the east side of the river.
  - 3 Native Planting**  
 A native planting area located on the east side of the river. It is a natural area with a variety of plants and animals. It is located on the east side of the river.
  - 4 Housing Development**  
 A housing development located on the east side of the river. It is a natural area with a variety of plants and animals. It is located on the east side of the river.
  - 5 Permeable Parking Lots**  
 A permeable parking lot located on the east side of the river. It is a natural area with a variety of plants and animals. It is located on the east side of the river.
  - 6 Walking Trails**  
 A walking trail located on the east side of the river. It is a natural area with a variety of plants and animals. It is located on the east side of the river.
  - 7 Nature Overlooks**  
 A nature overlook located on the east side of the river. It is a natural area with a variety of plants and animals. It is located on the east side of the river.
  - 8 Park**  
 A park located on the east side of the river. It is a natural area with a variety of plants and animals. It is located on the east side of the river.
- Property Boundary

# Strategies for **MANAGEMENT & OUTREACH**

for residents of Quasqueton & neighboring watershed communities



## *Strategies for Mitigation Management*

The Northeast Iowa RC&D Resiliency Planners also developed strategies for Mitigation Management and Outreach for city officials and the residents of Quasky. Each strategy works to provide Quasky with the tools and resources necessary to reduce the social, economic, environmental, and physical damages often caused by flooding and create a more flood resilient community.

### *Mitigation Management for City Officials: Proper Management of Existing and Future Stormwater Structure*

As explained in previous sections, city officials have implemented flood mitigation practices within the community. Maintaining these structures is essential to ensuring they function properly during heavy rainfall events. Residents should be educated on how to keep snow/ice and corn stubble away from existing stormwater culverts on their property, while city officials routinely check structures to clear them of any debris that may have gathered. If these structures were to become plugged, it could result in structure failure and increased flooding in the community.

When proper maintenance is coupled with implementation of conservation practices upstream of structures, these strategies can be particularly effective.

### *Expand Flow Direction Structures*

The City of Quasky contains some road and ditch culvert structures that divert water to the Upper Wapsipinicon River. These structures can be enhanced and additional ditches constructed as a reactionary mechanism to flood waters. These structures function at their greatest potential if kept clear of debris.



## Implement Urban Stormwater Practices

Multiple urban conservation BMPs or “green infrastructure” could be implemented to help increase infiltration of flood water from large rainfall events. They are also beneficial for improving water quality and reducing load on community storm sewer systems. Examples of some urban conservation BMPs are listed below.

More detailed descriptions can be found at the Iowa Stormwater Education Partnership website: <https://iowastormwater.org/rainscaping/>

**Rain Gardens:** Rain gardens are bowl shaped areas that collect stormwater runoff from roofs, pavement, and other hard surfaces. Rain gardens are usually home to a mix of deep-rooted flowers, grasses, and shrubs that help water soak deep into the soil. Aboveground rain gardens are full of color and act as butterfly gardens that provide habitat for wildlife and pollinators.

**Bioswales:** Bioswales are installed as an alternative to storm sewers and consist of highly permeable soils, perforated subdrains and earth embankments. They often have large drainage areas and act to infiltrate water while also proving a flow path.

**Constructed Wetlands:** Wetlands reduce stormwater flow rates and volumes by providing additional infiltration and evapotranspiration. They also provide a unique habitat to residential communities and opportunity for wildlife viewing and recreation.

**Permeable Pavers:** Permeable pavers allow water to infiltrate through traditionally impervious surfaces such as roads, driveways, and parking lots. Concrete pavers are brick-like structures that allow water to infiltrate in-between their interlocking edges. They contain a rock chamber under the pavers that provide additional infiltration and water holding capacity.

**Soil Quality Restoration:** Soil quality restoration is the process of improving soil health on new or existing lawns. This practice involves reducing soil compaction through aeration, and increasing organic matter with the addition of compost or high quality topsoil.

**Native Landscaping:** Trees and native prairie plants provide deep roots that provide high levels of infiltration and soil structure. Trees especially take up large amounts of water from the subsurface.

## Housing Relocation & Restoration of Natural Wetland

For much of natural history, the area surrounding Quasqueton was composed of natural wetlands. Much of the vegetation and soil within the ecosystem was well adapted to absorb excess water from the Upper Wapsipinicon River and runoff from heavy rainfall events. In the future, city officials may consider purchasing land and homes adjacent to the floodplain as they become vacant or available, and restoring the areas to natural wetland. With a greater capacity for water storage, restored wetlands will help to manage flooding within Quasqueton and remove the risk associated with owning a home within the flow path.



### ***Mitigation Management for Residents: Implement Urban Stormwater Practices***

To help reinforce stormwater management practices taken by city officials, residents of Quasky can also implement a variety of actions to increase infiltration on their properties and make themselves more resilient to flooding. These practices are outlined in the "Mitigation Management for City Officials: Implement Urban Stormwater Practices."

### ***Develop Household/Neighborhood Flood Action Plan***

Each household/neighborhood can develop a FRAP to protect their assets and become further resilient to the damage caused by flooding. Components of a personal FRAP could include, but are not limited to: preparing/maintaining an emergency kit with enough food, water, clothes, flashlight, first aid, and copies of important documents/valuables for each member of the family

(including pets); recording an inventory of household goods and their value; familiarizing oneself with local emergency procedures and locations of shelter in Quasky; creating a phone chain to alert vulnerable neighbors of rising flood waters; building a communal fund to develop and implement stormwater management practices on one's property to mitigate the impact of flooding. For a template from the Federal Emergency Management Authority to get you started, visit the following webpage: <https://www.ready.gov/sites/default/files/2021-04/family-emergency-communication-plan.pdf>

### ***Potential Funding Sources for Implementation***

In an effort to assist with the implementation costs of flood mitigation strategies listed above, the Northeast Iowa RC&D Resiliency Planners compiled a list of federal, state, local, and private funding sources for city officials and residents alike. This list is included in the Appendix section.









### ***Strategies for Outreach & Education***

Results of the VPS indicated a disconnect between residents and community leaders of Quaskey. Respondents often questioned why they continued to experience flooding and why city officials had not done more to prevent flooding within the community, despite the fact that they had indeed implemented numerous structures to reduce flooding. Residents have a misunderstanding as to how and why they experience flooding. In contrast to popular belief, much of their flooding is caused by a rising water table and overland flow rather than the Upper Wapsipinicon River. The goal of the Outreach and Education Plan is to educate and reconnect communication between residents and community leaders in the event of a flood. Target audiences for outreach and education include the groups listed previously on Pages 11 & 12.

### ***Educational Newsletters & Fliers***

A series of one-page fliers have been developed for use by city officials to educate residents on a variety of topics. The goal of these fliers is to reduce the misunderstanding between residents and community leaders when it comes to flooding in

Quaskey. These fliers will help community leaders communicate their reasoning behind actions taken in preparation and during flood events. They will also educate residents on topics such as the Upper Wapsipinicon River Watershed and the water table/groundwater, which is the major cause of basement flooding for many residents. Educational materials include ways residents can help city officials reduce flooding by keeping existing structures free of sediment and other debris.

### ***Field Days at Project Sites***

This activity will implement educational field days events on local farms and community flood reduction project locations. Landowners and community members will voluntarily participate. Topics range from in-home flood resilience projects like installing pumps and moving utilities, to structural practices such as construction of ponds and on-road structures. Methods include coordination of events and speakers, invitations, press releases and promotion through local media and partners, donations for meals, development of handouts, video, and post-event activities on social media. Outcomes of these field days would include increased dialog between community members and leaders, as well as an understanding of watershed resiliency and urban BMP structures.



### ***Educational Kiosks***

Installation and engagement with educational kiosks in strategic urban and rural locations will explain the practices and concepts associated with watershed resiliency and other priority topics like soil health, cover crops, permeable pavers, stream restoration, etc. Outcomes from implemented kiosks include an increased public awareness of and support for watershed resiliency, and implementation of specific BMPs on private and public properties to reduce flooding in the community.

### ***Community BMP Workshops***

This activity will develop a series of public workshops for residents who might be interested in learning more about building stormwater practices at home. The public workshops

will cover simple-to-construct BMPs for homeowners, such as rain barrels construction, native plantings installations, rain gardens, or native turf, roof water collection, installation of grassed pavers for sidewalks, etc. They may be implemented in combination with city cost-share or grants secured for private BMP implementation. Outcomes include increasing the visibility of low-cost, easy-to-maintain BMPs and general awareness of water conservation and management.

### ***Community-Wide Meetings***

Community-wide meetings provide the opportunity for open dialog between city officials and residents. They should include time for each to voice their concerns and opinions surrounding flooding within the community and work together to resolve issues or concerns brought to attention.



## The Land Restored



### Returning to Natives

The richness and fertility of the soil make Iowa the "Breadbasket of the World." The importance of the state's agricultural industry is unquestioned and irreplaceable. It has also led to Iowa being the most altered landscape in the nation. The vast native prairie grasslands that created our fertile soils have been reduced to less than 1% of their historic range. This farm is a classic example of land that was converted to agricultural production, but overgrazing and intensive row cropping led to heavy erosion, poor-quality timber and scarred streambanks. Driven by a strong conservation ethic, the landowner has managed the woodlands, replanted native prairie and stabilized streambanks on this site to help restore the land to its natural state.



**Streambank Stabilization**  
Streambank erosion at this site was contributing to sedimentation in Bush Creek. Stabilizing the bank with rock & establishing native grasses reduced erosion and improved habitat.



**Woodland Management**  
Tree plantings, better stand improvement and selective tree harvest practices on this site have restored overgrazed woodlands, leading to improved habitat and timber quality.



**Prairie Restored**  
The Iowa Native Plant Society on this site was awarded the Bush Creek award, so land was replanted to native prairie and established in a natural management through the Emergency Wetland Program.

Upper Wapsipinicon Watershed Management Authority, City of Quasqueton, Iowa State University, National Resources Conservation Service, and other partners supported the restoration of this site. Photo credit: © Lily Ross





Further Information & Resources:

# APPENDIX



## City of Quasky Flood Resiliency Action Plan Project

The City of Quasqueton was selected by the University of Iowa Flood Resiliency team to develop a Community Flood Resiliency Action Plan. Development of this Action Plan is funded by a grant awarded to the State of Iowa from the US Department of Housing and Urban Development (HUD) as a part of the Iowa Watershed Approach Project. The City of Quasky is partnering with Northeast Iowa RC&D to develop a Community Flood Resiliency Action Plan. Northeast Iowa Resource Conservation and Development (RC&D) is a 501(c)(3) Nonprofit organization who has been working in the Upper Wapsipinicon River Watershed for over 5 years.

The City of Quasky was selected for this project because of its historical experiences with river and flash flooding, and the community's existing innovative strategies that make the community more resilient. Despite the changes the City and its residents have made, the community of Quasky still experiences social, economic, environmental and physical damages due to flooding. The goal of this project, is to produce a Community Flood Resiliency Action Plan that the City of Quasky and its residents can use to create a community with the knowledge and financial resources to respond efficiently to flood events, and to mitigate flooding in the future.

The first step in creating a more resilient community is to gather information and stories directly from residents on ways you may have been impacted by flooding. Therefore, we (Tori Nimrod or Ross Evelsizer from Northeast Iowa RC&D) stopped by your home to deliver a short survey on Thursday, January 16th. We ask that you take about 5-10 minutes to fill out the survey and provide any information to us that you can. We will be coming back on **Thursday, January 23<sup>rd</sup> between 3:00pm and 6:30pm** to collect completed surveys. If you will not be home during the time of pick up, please tape completed surveys to the front outermost door of your home for them to be collected, or mail them by January 23<sup>rd</sup> to:

**Northeast Iowa RC&D  
PO BOX 916  
Postville, IA 52162**

We greatly appreciate the time you take to complete the survey. It is important to the City of Quasky to create a community where the city and its residents can better mitigate and respond to flooding in the community. If you have any questions, feel free to call Ross or Tori at Northeast Iowa RC&D at 563-864-7112.

Sincerely,

Tori Nimrod and Ross Evelsizer  
Northeast Iowa RC&D



## Flood Impact Survey

Please answer the questions below to the best of your ability. Tori or Ross from Northeast Iowa RC&D will be collecting surveys on Thursday, January 23<sup>rd</sup> between 3:00pm and 6:30pm. If you will not be home during that time, please tape completed survey to the outside of your front exterior door, or mail to the address below by January 23<sup>rd</sup>.

Northeast Iowa RC&D  
P.O. Box 916  
Postville, Iowa 52162

1. How long have you lived at this location? \_\_\_\_\_ years

2. Do you rent or own your current home?

Rent       Own

3. What is the approximate value of your home and property, including land and any outbuildings?

Less than \$50,000                       \$50,000-\$99,999                       \$100,000-\$249,999  
 \$250,000-\$499,999                       Over \$500,000                               I am not sure

4. How many people currently live in your household?

Number of Adults over 65 \_\_\_\_\_      Number of Adults 18-64 \_\_\_\_\_

Number of Children (younger than 18) \_\_\_\_\_

5. How many times have you been impacted by flooding since you have lived in this location? \_\_\_\_\_

6. Please briefly describe what happens to your property and/or to your home during a flood or large rain event (3+ inches):

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*For the following questions please base answers on the total number of floods experienced during the time you have lived at this location.*

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**7. Estimate flood damages to your HOME and PROPERTY.** Please consider all damages related to your home and associated property during the time you have lived there, such as landscaping features, driveways, furnaces, water heaters, and any outbuildings such as garages/sheds/barns.

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> \$0                | <input type="checkbox"/> \$1- \$5,000       | <input type="checkbox"/> \$5,000- \$10,000     |
| <input type="checkbox"/> \$10,000- \$15,000 | <input type="checkbox"/> \$15,000- \$20,000 | <input type="checkbox"/> Greater than \$20,000 |

**8. Estimate the damages to BELONGINGS.** Please consider all items in and around your home during the time you have lived there, such as clothing, furniture, and electronics, as well as cars, recreational vehicles, and other machinery.

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> \$0                | <input type="checkbox"/> \$1- \$5,000       | <input type="checkbox"/> \$5,000- \$10,000     |
| <input type="checkbox"/> \$10,000- \$15,000 | <input type="checkbox"/> \$15,000- \$20,000 | <input type="checkbox"/> Greater than \$20,000 |

**9. Did you or anyone in your household lose any of the following (indicate “yes” by checking the box):**

- Irreplaceable objects (pictures, memorabilia and family heirlooms)       Pets  
 Other irreplaceable items: \_\_\_\_\_

**10. What FUNDING SOURCES were used for repairs/replacement to your home, property, or belongings, [check all that apply]**

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> Personal Funds       | <input type="checkbox"/> Non-profit/Church/Charity     | <input type="checkbox"/> Friends or Co-workers |
| <input type="checkbox"/> Insurance Settlement | <input type="checkbox"/> Crowd-funding (e.g. GoFundMe) | <input type="checkbox"/> Government Assistance |
| <input type="checkbox"/> Bank Loan            | <input type="checkbox"/> Family                        | <input type="checkbox"/> Put on Credit Card    |

**11. If you received financial flood recovery assistance, what percentage of the total costs did it fulfill?**

- |                                |                                 |                                  |                                  |                               |
|--------------------------------|---------------------------------|----------------------------------|----------------------------------|-------------------------------|
| <input type="checkbox"/> 0-25% | <input type="checkbox"/> 26%-50 | <input type="checkbox"/> 51%-75% | <input type="checkbox"/> 76%-99% | <input type="checkbox"/> 100% |
|--------------------------------|---------------------------------|----------------------------------|----------------------------------|-------------------------------|

**12. A flood affects a whole community. In this section, we ask ways flooding may have affected your household, even if your home or property was not flooded. [check all that apply]**

- Driving alternate routes or longer distances due to closed or impacted roads or bridges from flooding
- Not working or not being able to get to work
- Unable to attend school (K12, University, or continuing Ed. of any kind)
- Loss or change in utility services (power, phone coverage, water, garbage collection, etc.)
- Changes in child care or child care arrangements
- Changes in health or wellness (illness, injury, emotional or mental health impacts)
- Other indirect loss

**13. How much do you estimate the changes indicated in question 12 above cost you and others in your household? - we recognize it may be challenging to come up with exact numbers; go with your gut and give your best estimate. Thank you!**

- |  |   |   |                                      |
|--|---|---|--------------------------------------|
| <input type="checkbox"/> \$0             | <input type="checkbox"/> Less than \$100  | <input type="checkbox"/> \$100-\$499          | <input type="checkbox"/> \$500-\$999 |
| <input type="checkbox"/> \$1,000-\$1,999 | <input type="checkbox"/> \$ 2,000-\$4,999 | <input type="checkbox"/> Greater than \$5,000 |                                      |

*The following questions help us understand ways that you may have responded to flooding, as well as thoughts about what actions might better allow your household and our communities to bounce back after flooding.*

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14. Did you or anyone in your household, make improvements to your home or property to better prepare for or prevent future flooding? *[check all that apply]*

- Earth Moving/Landscaping
- Tiling or drainage management
- Structural changes to your home
- Utility improvements in your home
- Structural Changes to other buildings
- Enrolling in conservation programs (e.g. CRP, EWP)
- Other Improvements: \_\_\_\_\_

15. How much do you estimate the changes indicated in question 14 above cost you and others in your household? - *we recognize it may be challenging to come up with exact numbers; go with your gut and give your best estimate. Thank you!*

- \$0
- \$10,000-\$19,999
- Less than \$1,000
- \$ 20,000-\$29,999
- \$1,000-\$4,999
- Greater than \$30,000
- \$5,000-\$9,999

16. Did you or anyone in your household, make other changes to better prepare for or prevent future flooding? *[check all that apply]*

- Buy flood insurance
- Buy groundwater insurance
- Make a household flood response plan
- Start a phone tree with neighbors
- Other \_\_\_\_\_

*Please rate your level of agreement with each of the following statements from Strongly Agree to Strongly Disagree.*

17. Do you feel the City of Quasky has done enough to mitigate flooding within the community?

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree
- I don't know

18. Do you feel Buchanan County has done enough to mitigate flooding within the County?

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree
- I don't know

19. Do you feel the State of Iowa has done enough to mitigate flooding within the State?

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree
- I don't know

20. What additional actions do you believe the City of Quasky, Buchanan County, or the State of Iowa should take to mitigate flooding in the future?

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**21. Do you have any photos of flooding on your property that you would be willing to share with us? (Photos may be used in the Quasky Flood Resiliency Action Plan or posted online in association with this project).**

Yes, I would like to share photos with Tori or Ross at Northeast Iowa RC&D.

No

If yes, Please email digital versions to [tori@northeastiowarc.org](mailto:tori@northeastiowarc.org) or mail copies to:

Northeast Iowa RC&D

PO BOX 916

Postville, IA 52162

**22. If you are interested in learning more about the project and future events, or would be interested in talking more about your flood experiences with Tori Nimrod or Ross Evelsizer with Northeast Iowa RC&D, please indicate and leave your contact information below.**

Yes, I would like to talk more about the flooding experiences with Tori or Ross.

Yes, I would like to learning more about the project and future events.

No

Name: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Email: \_\_\_\_\_

Thank you for taking the time to fill out this survey! Your response is very valuable to the development of a Flood Resiliency Plan for the City of Quasky. Please call Ross or Tori with Northeast Iowa RC&D at 563-864-7112 with any questions about the survey.

END OF SURVEY

# Quasqueton Flood Survey Report Summary

January 2020

## Methods:

Northeast Iowa RC&D Planners met with Quasqueton Mayor and community leaders to discuss areas of town that are affected by flooding on a regular basis. They highlighted the properties between 3rd Street and 7th Street, which are located in the lowest part of town in an area that was historically a wetland. People in this area experience flooding caused by a rising water table, and surface runoff from agricultural fields.

On January 16th between 3:00pm and 4:30pm surveys were hand delivered to 20 Quasqueton residents between 3rd and 7th Street. Surveys were either hand distributed to residents that were present, or placed in a visible location for the homeowner to see. RC&D planners then returned one week later on January 23rd during the same time period to pick up surveys. Many participants attached completed surveys on the front of their outermost door as instructed in the survey. Others were home and provided short conversations about flooding on their property. One participant vocally expressed his/her concern with the methods of the survey collection and refused to participate.

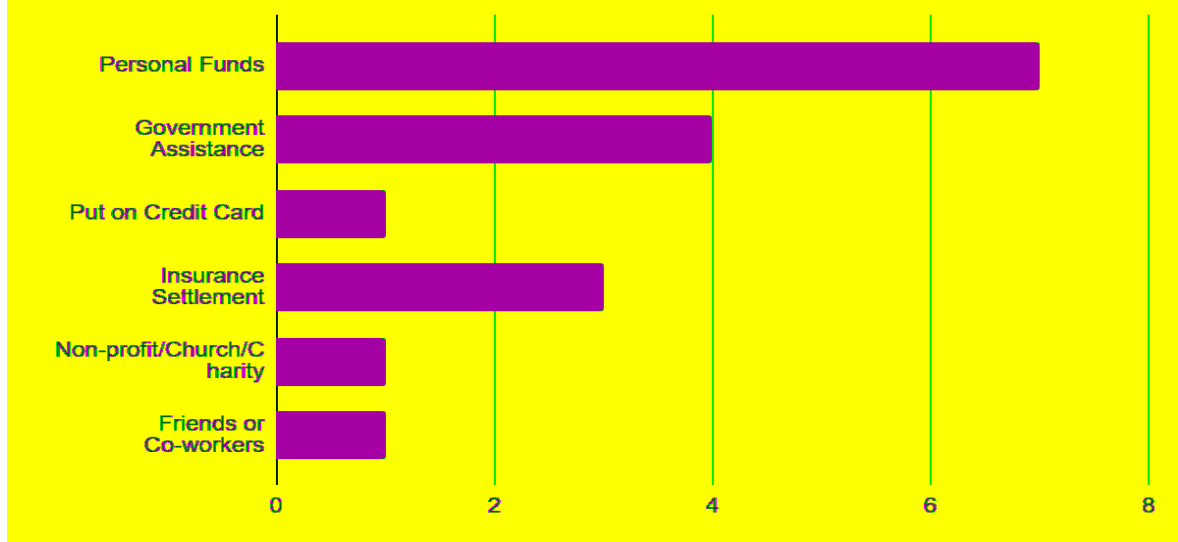
## Results:

Out of 20 surveys 10 were completed for a total response rate of 50%. Participants provided a variety of details about their experiences with flooding. Many participants explained how water comes into their basements when they receive heavy rainfall. The number of times participants have been affected by flooding ranged from zero to ten with a median of three. Participants also listed ways they recover from flooding and ways they have tried to mitigate flooding in their home. One participant listed, *“Duct replaced twice plus cleaning cost. Redo well, pressure tank, wiring, well pit flooded. Crawl space flooded to floor joist, garage fills full of 2 feet of water, driveway washes, barn floods, washes out landscaping. Major cleaning up of everything to remove debris from flooding.”* Other participants mitigated flooding by moving utilities to the first floor, installing sump pumps, and tilling away from buildings.

## Other results:

- 7 out of 10 participants are elderly or have children at home
- River flooding from the Wapsi does not seem to be an issue, but overland flow and flash flooding during heavy rains
- 4 participants have spent more than 20,000 dollars on flooding and two participants have spent less than 10,000 dollars

## What funding sources were used for repairs/replacement to your home, property, or belongings

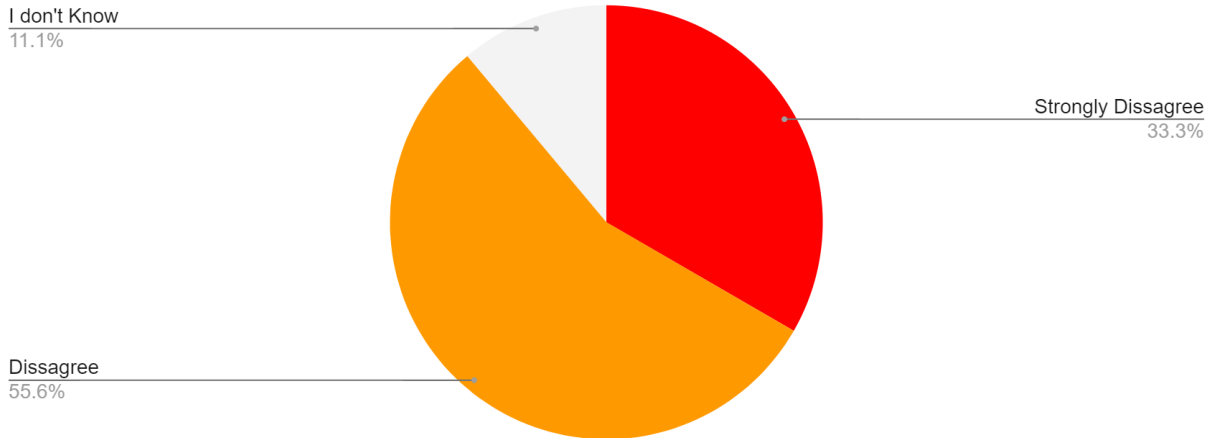


- Majority of participants used personal funds to pay for flood repairs/replacement.
  - Those that used outside funds stated those funds only covered less than 50% of the total costs for repairs.
- Indirect losses experienced by participants included driving alternate routes/longer distances, not being able to work, loss or change in utilities, changes in health or wellness, and other indirect losses not specified.
  - Most participants indicated these indirect costs adding up to less than \$2,000.
- Participants indicated they made the following improvements to their home or property
  - 50% of participants made structural changes to their home
  - 40% of participants managed drainage around their property
  - 40% of participants made utility improvements in their home such as moving utilities to the first floor.
- Majority of improvements made to participants households were less than \$5,000
- 20% of participants bought flood insurance.

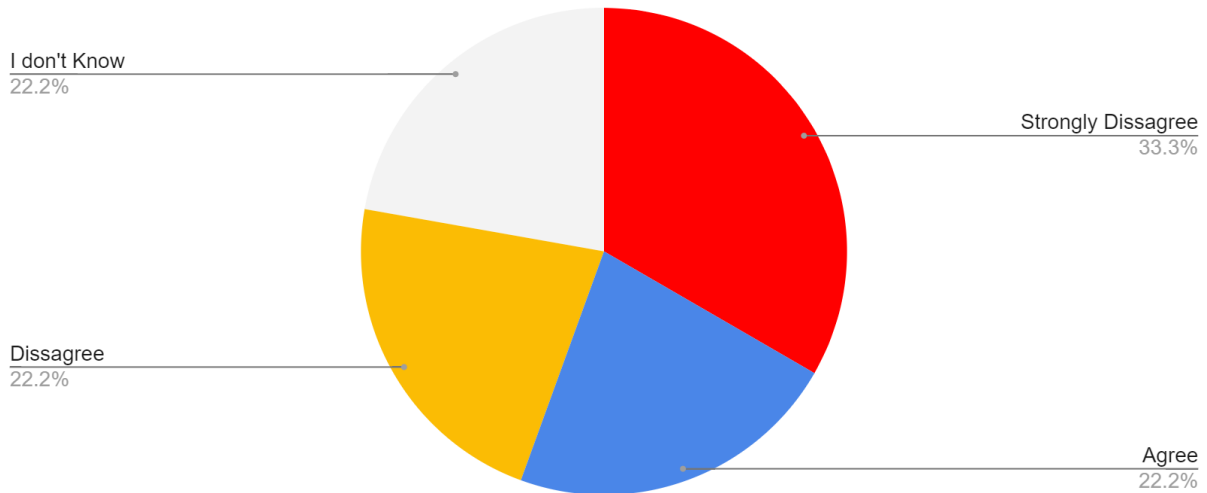
Participants were also asked their views on how the City of Quasky, Buchanan County and the State of Iowa have helped mitigate flooding in their community. 88% of participants indicated that they did not think enough has been done by city officials to mitigate flooding in the community. Many participants indicated that the city needs to do a better job during flood response, by keeping culverts drainage systems free of debris and need to do a better job barricading streets. One participant stated, *“More ditches, bigger sewer pipes under the streets. Drain the underground lake under this part of Quasky, so it doesn’t rise up and enter homes. Now with city water, it isn’t being drained by people’s wells as much, keeping ditches mowed and free of debris so that water may flow through them properly.”* One resident indicated they would move out of the community if they are flooded again. Results from these questions provide an area of education and further communication between the City of Quasky and its residents.

- 50% of participants disagreed that Buchanan County and/or the State of Iowa was doing enough to mitigate flooding.
- 20% of participants were not sure that Buchanan County and the State of Iowa are doing to mitigate flooding in the community.

Do you feel the city of Quasky has done enough to mitigate flooding within the community?



Do you feel Buchanan county has done enough to mitigate flooding within the county?



Residents in this area are continuously affected by flooding and have spent thousands of dollars repairing and improving their homes to mitigate future flood events. Even with these improvements, residents are still affected by the recurring costs associated with flooding such as cleaning up debris off their land and cleaning the inside of their homes. Residents that participated in the survey expressed their frustration with the annual dollars they spend on flood cleanup and repairs.

# Potential Funding Sources for Implementation of Watershed Practices

Program	Description	Eligibility	Timeline	Webpage
<b>Land Conservation</b>				
<b>USDA Natural Resources Conservation Service</b>				
Agricultural Conservation Easement Program (ACEP)	Provides Wetland Reserve Easements (WRE) and Agricultural Land Easements (ALE) to restore wetlands and protect grasslands	Landowners; land trusts; tribes; and other entities	Rolling	<a href="http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/easements/acep/?cid=stelprdb1242695">http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/easements/acep/?cid=stelprdb1242695</a>
Environmental Quality Incentives Program (EQIP)	Funding and technical assistance for natural resource conservation in environmentally beneficial and cost-effective manner; program is generally 50 percent cost-share	Farmers; ranchers; forest landowners	Rolling	<a href="http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip/">http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip/</a>
Conservation Stewardship Program (CSP)	Funding to improve and maintain existing conservation practices	Private landowners; legal entities; tribes	Rolling	<a href="http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/financial/csp/?cid=stelprdb1242683">http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/financial/csp/?cid=stelprdb1242683</a>
Regional Conservation Partnership Program (RCPP)	Funding to achieve measurable goals/outcomes for producers and landowners in priority areas. Program is generally 75 percent cost-share	Agriculture/silverculture producers association; federal or local unit of government; tribe; farmer cooperative; water district; municipal water or waste water treatment entity; institute of higher education; organization with established history of working with producers; conservation district	Varies	<a href="https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/rcpp/">https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/rcpp/</a>
<b>USDA Farm Services Agency</b>				
General Signup Conservation Reserve Program (CRP) Continuous Conservation Reserve Program (CCRP)	Engages producers to implement conservation practices on environmentally sensitive land	Landowners	Varies	<a href="http://www.fsa.usda.gov">www.fsa.usda.gov</a> Click on "Conservation Programs."
<b>U.S. Fish and Wildlife Service</b>				
Conservation Partners Program	Funding for staff and technical assistance to private landowners in regions where some of the nation's most crucial conservation issues can be addressed through Farm Bill programs	Landowners	April	<a href="https://www.nfwf.org/programs/conservation-partners-program?activeTab=tab-1">https://www.nfwf.org/programs/conservation-partners-program?activeTab=tab-1</a>
<b>Iowa Department of Natural Resources</b>				
Resource Enhancement and Protection Program (REAP) - County Conservation	Funding for land easements, capital improvements, protection of resources, upgrading facilities, environmental education, and equipment	Counties	August 15th	<a href="http://www.iowadnr.gov/Environment/REAP/REAPFundingatWork/CountyConservation.aspx">http://www.iowadnr.gov/Environment/REAP/REAPFundingatWork/CountyConservation.aspx</a>
Land & Water Conservation Fund	Financial match up to 50% to develop multi-use recreation facilities	Cities and counties	March 15th	<a href="http://www.iowadnr.gov/InsideDNR/GrantsOtherFunding/LandWaterConservationFund.aspx">http://www.iowadnr.gov/InsideDNR/GrantsOtherFunding/LandWaterConservationFund.aspx</a>
<b>Regional Funding</b>				
Iowa Native Plant Society	Funding to support acquisition, restoration, and management of native perennial vegetation	Non-profit organizations; agencies; landowners	January	<a href="http://iowanativeplants.org/docs/INPSGrantInformationFor2021.pdf">http://iowanativeplants.org/docs/INPSGrantInformationFor2021.pdf</a>
<b>Private Funding</b>				
Cornell Douglas Foundation - Land Conservation/Watershed Protection	Funding for community land conservation and watershed protection	Non-profit organizations	Rolling	<a href="https://cornelldouglas.org/apply">https://cornelldouglas.org/apply</a>



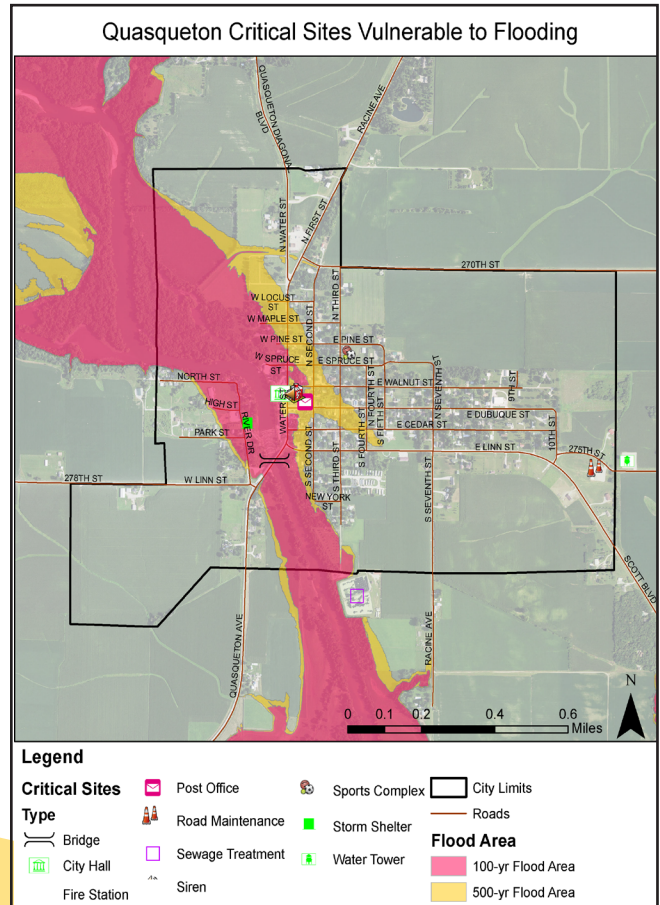
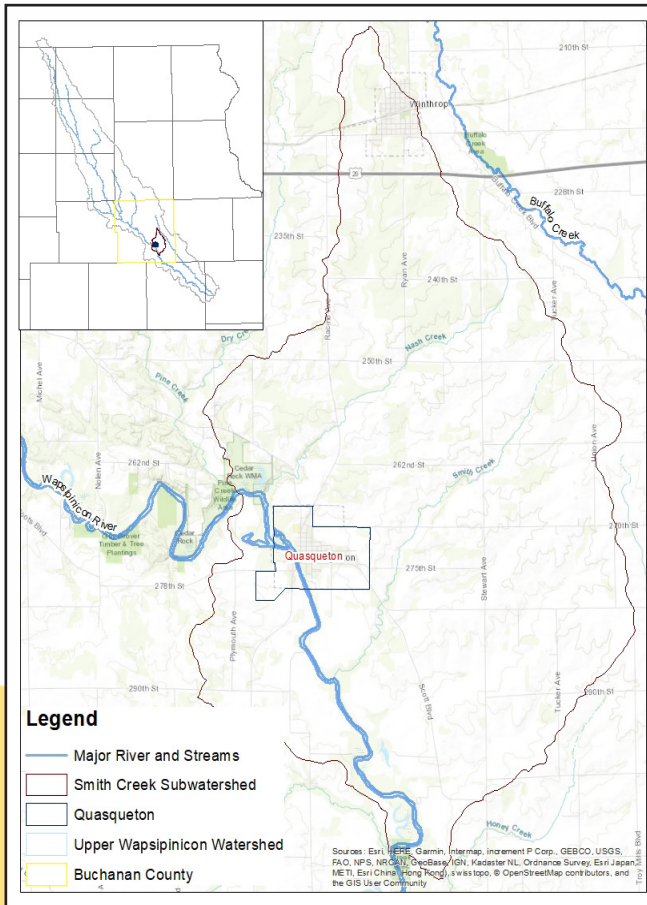
Alliant Energy Foundation	Funding for community events and programs focusing on the following areas: Hunger and Housing; Workforce Readiness; Environmental Stewardship; and Diversity, Safety and Well-being; Community Engagement	Units of local government; non-profit organizations; or institution of higher education	Rolling	<a href="https://www.alliantenergy.com/CommunityAndStewardship/CommunitySupport/CommunityGivingPrograms/ImpactGrants">https://www.alliantenergy.com/CommunityAndStewardship/CommunitySupport/CommunityGivingPrograms/ImpactGrants</a>
<b>Wetlands</b>				
<b>USDA Natural Resources Conservation Service</b>				
Watershed and Flood Prevention Operations (WFPO) Program	Funding and technical assistance to protect and restore watersheds up to 250,000 acres	Units of federal, state, local, or tribal government	Varies	<a href="https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/landscape/wfpo/?cid=nrcs143_008271">https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/landscape/wfpo/?cid=nrcs143_008271</a>
<b>USDA Farm Services Agency</b>				
Farmable Wetland Program (FWP)	Funding to restore previously farmed wetlands up to one million acres	Landowners	Rolling	<a href="http://www.fsa.usda.gov/FSA/webapp?area=home&amp;subject=copr&amp;topic=fpw">http://www.fsa.usda.gov/FSA/webapp?area=home&amp;subject=copr&amp;topic=fpw</a>
<b>U.S. Fish and Wildlife Service</b>				
North American Wetlands Conservation Act (NAWCA)	Matching funds to long-term protection wetland conservation projects	Contact coordinator at Prairie Pothole Joint Venture	Rolling	<a href="https://www.fws.gov/birds/grants/north-american-wetland-conservation-act.php">https://www.fws.gov/birds/grants/north-american-wetland-conservation-act.php</a>
<b>Iowa Department of Agriculture and Land Stewardship - Division of Soil Conservation</b>				
Conservation Reserve Enhancement Program (CREP)	Funding to establish nitrate removal wetlands in 37 north-central Iowa counties with no cost to landowner	Landowners	Rolling	<a href="http://www.iowaagriculture.gov/waterResources/CREP.asp">http://www.iowaagriculture.gov/waterResources/CREP.asp</a>
<b>Community Development</b>				
<b>USDA Rural Development</b>				
Water and Environmental Programs	Multiple programs funding and technical assistance focused on water and waste infrastructure projects in rural communities	Varies	Varies	<a href="https://www.rd.usda.gov/programs-services/all-programs/water-environmental-programs">https://www.rd.usda.gov/programs-services/all-programs/water-environmental-programs</a>
<b>US Environmental Protection Agency (EPA)</b>				
Water Infrastructure Finance and Innovation Act Program	Low-cost supplemental loans to upgrade aging water infrastructure to enhance resilience to flooding; 50/50% cost share	Units of local or tribal government	October	<a href="https://www.epa.gov/wifia/wifia-application-materials">https://www.epa.gov/wifia/wifia-application-materials</a>
<b>U.S. Fish and Wildlife Service</b>				
Resilient Communities Program	Funding for wetland restoration and protection of residential areas from stormwater runoff; minimum 50/50% cost share	Units of state and local governments; rural communities	April	<a href="https://www.nfwf.org/sites/default/files/resilient-communities/Documents/factsheet.pdf">https://www.nfwf.org/sites/default/files/resilient-communities/Documents/factsheet.pdf</a>
<b>US Economic Development Administration (EDA)</b>				
Public Works and Economic Adjustment Assistance Programs	Funding to mitigate and respond to adverse economic impacts from flooding through public infrastructure resilience projects; 50/50% cost share	Units of state, local, or tribal government, institutions of higher education, economic development districts, and non-profit organizations	Rolling	<a href="https://www.eda.gov/funding-opportunities/">https://www.eda.gov/funding-opportunities/</a>
<b>US Army Corps of Engineers</b>				
Intragency Nonstructural Flood Risk Management Projects	Technical engineering assistance to public and private partners for nonstructural flood risk management projects	Units of state, local, or tribal government Contact local Silver Jackets team	Varies	<a href="https://www.nws.usace.army.mil/Missions/Civil-Works/Programs-and-Projects/Authorities/Specially-Authorized-Projects/Flood-Risk-Management/">https://www.nws.usace.army.mil/Missions/Civil-Works/Programs-and-Projects/Authorities/Specially-Authorized-Projects/Flood-Risk-Management/</a>
<b>US Department of Transportation (DoT)</b>				
BUILD Transportation Discretionary Grants	Funding to repair or improve surface transportation for flood mitigation	Units of local government and rural communities	TBD	<a href="https://www.transportation.gov/BUILDgrants/apply">https://www.transportation.gov/BUILDgrants/apply</a>
<b>Regional Funding</b>				
IA Economic Development	Funding to support non-traditional solutions to problems faced by rural communities, focusing on community investment, growth and connection	Units of local government; institutions of higher education; businesses; non-profit organizations and foundations	TBD	<a href="https://www.iowaeda.com/empower-rural-iowa/rural-innovation-grant/">https://www.iowaeda.com/empower-rural-iowa/rural-innovation-grant/</a>

Buchanan County Community Foundation	Funding for projects that improve the quality of life for people living in Buchanan County, including health, community betterment, and environment	Units of local government or non-profit organizations	April	<a href="https://d2b1x2p59qy9zm.cloudfront.net/attachments/f06f8b0f713dbe7517909c465c7a305f5bea4de6/store/2ee67f11afda776df0b3c4724569acd53cd6b46a86777d3d8a14d015cb0a/Buchanan+2020+-+Grant+Guidelines+-+Revised.pdf">https://d2b1x2p59qy9zm.cloudfront.net/attachments/f06f8b0f713dbe7517909c465c7a305f5bea4de6/store/2ee67f11afda776df0b3c4724569acd53cd6b46a86777d3d8a14d015cb0a/Buchanan+2020+-+Grant+Guidelines+-+Revised.pdf</a>
Iowa Resource Conservation and Development	Iowa's twelve Resource Conservation & Development (RC&D) councils help rural Iowa communities care for and protect their natural resources in a way that improves the local economy and raises living standards	Varies	January	<a href="http://iowaleaguercd.org/">http://iowaleaguercd.org/</a>
<b>Private Funding</b>				
Clif Bar Grant	Funding for conservation, recreation, improved environmental health, and building stronger communities	Non-profit organizations	February, June, and October	<a href="http://clifbarfamilyfoundation.org/grants-programs/small-grants">http://clifbarfamilyfoundation.org/grants-programs/small-grants</a>
Wellmark Foundation	Funding to develop, implement, and enhance local wellness and prevention projects with a focus on long-term sustainability	Local communities; non-profit organizations	February	<a href="https://www.wellmark.com/foundation/traditional-grants.html">https://www.wellmark.com/foundation/traditional-grants.html</a>
<b>Water Quality</b>				
<b>US Environmental Protection Agency (EPA)</b>				
Farmer to Farmer: Gulf of Mexico Watershed	Funding to improve water quality, habitat, resilience and environmental education through the demonstration of innovative practice on working lands	Units of state, local, or tribal government; interstate agencies; institutes of higher education; non-profit organizations	October	<a href="https://www.epa.gov/sites/production/files/2020-08/documents/epa_gmd_2020_farmer_final_rfa_0.pdf">https://www.epa.gov/sites/production/files/2020-08/documents/epa_gmd_2020_farmer_final_rfa_0.pdf</a>
Section 319 Nonpoint Source Grant Program	Funding and technical assistance to control nonpoint sources of water pollution, including from flood damage and agricultural field applicants; 60/40% cost share	Units of local or tribal government	Rolling	<a href="https://www.epa.gov/nps/319-grant-current-guidance">https://www.epa.gov/nps/319-grant-current-guidance</a>
<b>Iowa Department of Natural Resources</b>				
State Revolving Fund: Local Water Protection	Low-interest loans to control runoff, sediment, nutrients, pesticides or other nonpoint source pollutants from entering Iowa waterways	Landowners	Continuous	<a href="http://www.iowasrf.com/program/other_water_quality_programs/local-water-protection/#:~:text=Local%20Water%20Protection%20%2D%20State%20Revolving%20Fund&amp;text=The%20Local%20Water%20Protection%20Program,pollutants%20from%20entering%20Iowa%20waters.">http://www.iowasrf.com/program/other_water_quality_programs/local-water-protection/#:~:text=Local%20Water%20Protection%20%2D%20State%20Revolving%20Fund&amp;text=The%20Local%20Water%20Protection%20Program,pollutants%20from%20entering%20Iowa%20waters.</a>
<b>Iowa Department of Agriculture and Land Stewardship - Division of Soil Conservation</b>				
Watershed Protection Fund Program (WSPF)	Funding to support projects in SWCDs to provide water quality protection, flood control, and soil erosion protection in priority watersheds; 50-75 percent cost-share	Soil and Water Conservation Districts and partners	TBD	<a href="http://www.iowaagriculture.gov/waterResources/projectApplicationRequest.asp">http://www.iowaagriculture.gov/waterResources/projectApplicationRequest.asp</a>
Soil and Water Enhancement Account – REAP Water Quality Improvement Projects	Funding to support projects in SWCDs to provide water quality protection and improvement; 50-75 percent cost-share	Soil and Water Conservation Districts and partners	TBD	<a href="http://www.iowaagriculture.gov/FieldServices/waterQualityProtectionProject.s.asp">www.iowaagriculture.gov/FieldServices/waterQualityProtectionProject.s.asp</a>
<b>Private Funding</b>				
Charles Stewart Mott Foundation - Freshwater	Funding to strengthen the environmental community and inform the development of water quality and quantity projects	National, regional, and state organizations active in freshwater solutions; intermediary organizations assisting non-profits and communities	Rolling	<a href="https://www.mott.org/work/environment/water/">https://www.mott.org/work/environment/water/</a>
<b>Disaster Preparedness and Response</b>				
<b>Federal Emergency Management Agency (FEMA)</b>				

Flood Mitigation Assistance (FMA) Program	Funding for flood mitigation planning and projects to reduce flood damage to buildings insured under the National Flood Insurance Program	States, local communities, or tribal government	January	<a href="https://www.fema.gov/grants/mitigation/floods/">https://www.fema.gov/grants/mitigation/floods/</a>
Building Resilient Infrastructure & Communities (Formerly Pre-Disaster Mitigation (PDM) Program)	Funding for hazard mitigation projects to reduce risks from natural disasters	Units of state, local, or tribal government	January	<a href="https://fema.gov/grants/mitigation/building-resilient-infrastructure-communities/">https://fema.gov/grants/mitigation/building-resilient-infrastructure-communities/</a>
Hazard Mitigation Grant Program (HMGP)	Funding available post-presidential disaster declaration to rebuild infrastructure to mitigate future disaster loss in communities	Units of state, local, or tribal government	Post-presidential disaster declaration	<a href="https://fema.gov/grants/mitigation/hazard-mitigation/">https://fema.gov/grants/mitigation/hazard-mitigation/</a>
Community Development Block Grant - Disaster Recovery	Funding available post-presidential disaster declaration to address long-term recovery and restoration of infrastructure	Units of state, local, or tribal government	Post-presidential disaster declaration	<a href="https://www.hudexchange.info/programs/cdbg-dr/">https://www.hudexchange.info/programs/cdbg-dr/</a>
Iowa Department of Homeland Security & Emergency Management	Administers FEMA's Hazard Mitigation Assistance (HMA) grants to reduce or eliminate potential losses to local assets	Local governments	Varies	<a href="https://homelandsecurity.iowa.gov/grants-overview/grants/#HMA">https://homelandsecurity.iowa.gov/grants-overview/grants/#HMA</a>
<b>US Economic Development Administration (EDA)</b>				
Disaster Supplemental Funding	Funding to plan and implement flood resilience projects; up to 80/20% cost-share	Units of state, local, or tribal government	Post-presidential disaster declaration	<a href="https://www.eda.gov/disaster-recovery/supplemental/">https://www.eda.gov/disaster-recovery/supplemental/</a>
<b>Recreation</b>				
<b>National Park Service</b>				
Rivers, Trails, and Conservation Assistance Program	On-site planning and technical assistance to support community-led natural resource conservation and outdoor recreation projects, including nature-based flood control measures	Units of state, local, or tribal government; non-profit organizations; citizen groups	March	<a href="https://www.nps.gov/orgs/rtca/apply.htm">https://www.nps.gov/orgs/rtca/apply.htm</a>
<b>Iowa Department of Natural Resources</b>				
Resource Enhancement and Protection Program (REAP) - City Parks & Open Space	Financial assistance to develop multi-use recreation facilities	Cities	August 15th	<a href="http://www.iowadnr.gov/Environment/REAP/REAPFundingatWork/CityParksOpenSpaces.aspx">http://www.iowadnr.gov/Environment/REAP/REAPFundingatWork/CityParksOpenSpaces.aspx</a>
<b>Iowa Department of Agriculture and Land Stewardship - Division of Soil Conservation</b>				
Iowa Financial Incentives Program (IFIP)	50 percent cost-share available through 100 SWCDs for permanent soil conservation practices	Landowners	Rolling	<a href="http://www.iowaagriculture.gov/FieldServices/financialAssistance.asp">http://www.iowaagriculture.gov/FieldServices/financialAssistance.asp</a>
No-Interest Loans	State administered loans for permanent soil conservation practices	Landowners	February 1st	<a href="http://www.iowaagriculture.gov/FieldServices/noInterestLoans.asp">http://www.iowaagriculture.gov/FieldServices/noInterestLoans.asp</a>
*Funding descriptions from Watershed Improvement Funding Sources, revised by Kyle Ament at Iowa DNR (Jan. 2021), or corresponding funding source webpage				

# Quasqueton Flood Resilience Action Plan: WHY DOES THE CITY FLOOD?

## understanding flooding in Quasky



The region of northeast Iowa, including the city of Quasqueton, has been largely affected by flooding during the last several decades. This is because the landscape of the Upper Wapsipinicon River Watershed has changed drastically over the last century.

The city of Quasqueton, locally known as Quasky, is located within the Upper Wapsipinicon River Watershed, in the subwatershed of Smith Creek. A watershed is a land entity that encompasses all land areas from which water flows into a common body of water.

Quasky is surrounded by hundreds of acres of conventional agricultural land. Conventional cropland tends to have less developed root systems than that of native perennial vegetation, and as such, a lessened

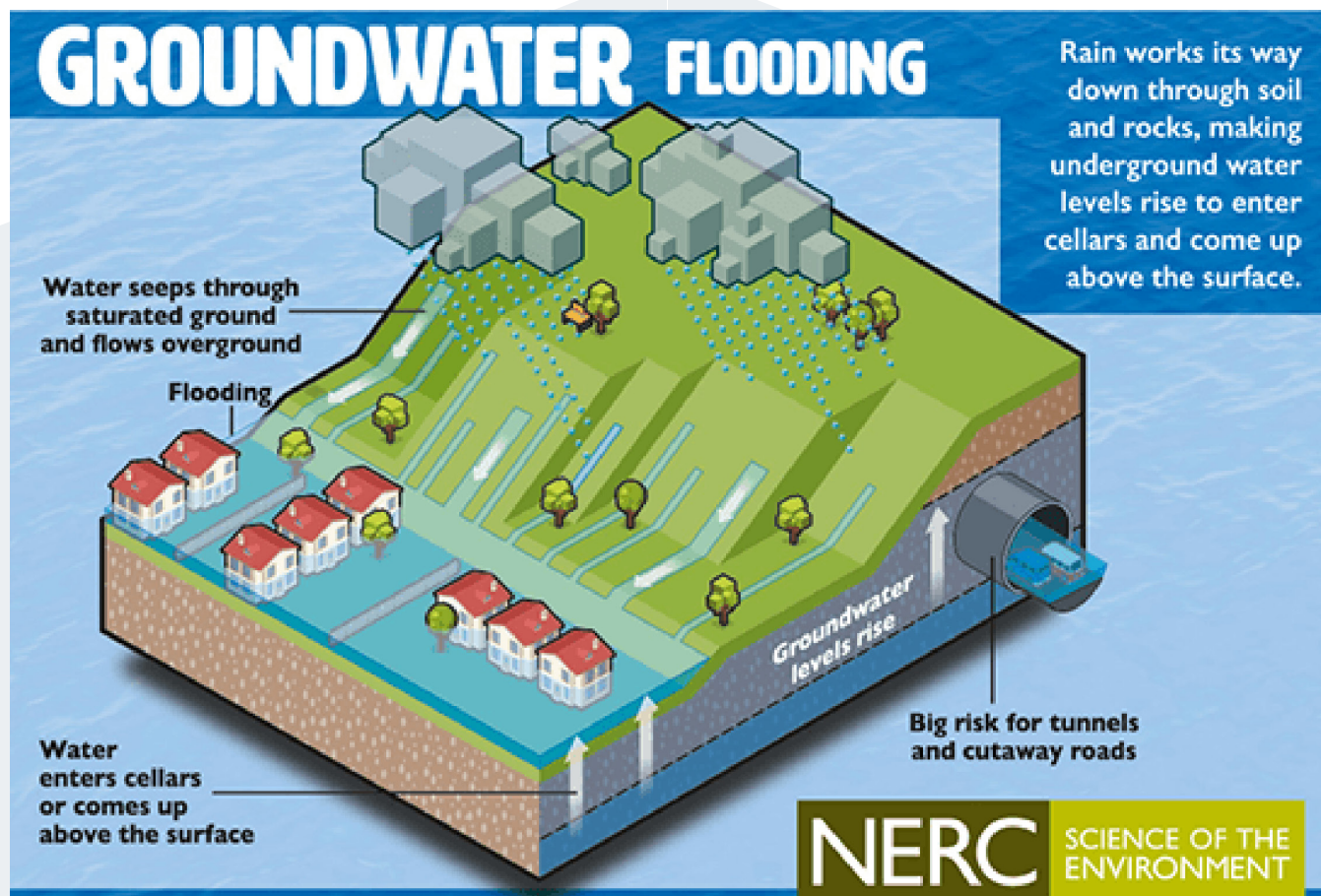
ability to retain water within the soil. As a result, the amount of water flowing over the land and into the city greatly increases during a major rainfall event.

As climate scientists predict an increase in rainfall intensity and frequency over the next 50 years, the threat of flooding increases as well. To protect residents and their assets, the city officials are partnering with local organizations to develop the Quasqueton Flood Resilience Action Plan.



# Quasqueton Flood Resilience Action Plan: **WHY DOES MY HOME FLOOD?**

## river flooding vs. flash flooding



Understanding the climate and hydrology of the watershed, past flood events, flooding frequency, and precipitation trends, can help watershed residents and conservation planners to develop realistic goals and strategies to reduce future flooding and its economic, environmental and social impacts, especially on the most vulnerable populations.

Unlike many other riverbank communities, flooding in Quasqueton is largely due to a combination of water running off the land and a rising water table. This is commonly known as a “flash flood.”

The water table is defined as the boundary between the surface of the soil and the point

at which the soil is completely saturated with water. This boundary is dependent upon the level of water in the river. When a major rainfall event occurs, rainwater infiltrates the ground and the water table rises, often entering basements or low-lying areas. This type of flooding is difficult to predict and can be hard to prepare for without advanced notification.



# Quasqueton Flood Resilience Action Plan: **MITIGATING FLOOD DAMAGE**

## as a resident of Quasky



### *Homeowner Mitigation*

As a homeowner in Quasky, you have the power to protect your home and community from the damages of flooding. Consider implementing some of the following strategies on your property:

**Keep culverts clear:** Help keep public stormwater systems free of debris, ice, and snow. This will funnel water away from buildings/homes and direct it to where it belongs.

**Be weather aware:** Subscribe to weather alerts and monitor stream gauges during heavy rainfall events.

**Increase infiltration:** Set up rain barrels, rain gardens, or other rainwater storage systems to assist with water infiltration.

**Protect your assets:** Relocate water heaters, furnaces, photos, and other valuables from basements or low-lying areas to higher levels. Install a sump pump and downspouts. Grade your lawn away from your home or consider planting a native perennial vegetation garden.

### *Landowner Mitigation*

As a landowner, there are additional infiltration and detention practices you might consider to assist flood mitigation throughout Quasky. There may be federal, state, or private cost-share assistance available to implement the following practices:

**Cover crops/No-till:** Cover crops are planted between cash crop seasons in order to keep cover on the ground

all year long. Using cover crops with no-till management strategy improves soil health and overall productivity.

**Wetlands:** Wetlands provide areas where excess water can be stored or filtered before entering a nearby stream or river.

**Detention ponds:** Detention ponds provide additional storage for runoff water from neighboring landscapes. They can be designed to hold water all year round or for a short period of time.

**Water and Sediment Control Basin (WASCOB):** A WASCOB is an embankment structure that collects runoff water at the bottom of a drainage area and slowly releases it, allowing sediment and nutrients to filter out.

**Multi-cropping:** Multi-cropping is the process of growing more than one crop in the same growing season on the same section of land. Multi-cropping adds diversity to crop rotations, creates additional economic opportunities, reduces input costs and weed pressure, mimics nature, builds soil health, and more.

**Native Perennial Vegetation/CRP:** Establishing and maintaining the permanent vegetative cover of native grasses, legumes, and forbs.



# Quasqueton Flood Resilience Action Plan: **PROTECTING RESIDENTS**

## with city-wide flood mitigation initiatives



Quasqueton city officials recognize the importance of flood mitigation and protection practices within the community. This is why they are partnering with local organizations to develop the Quasqueton Flood Resilience Action Plan. Some actions they have taken to protect residents include:

**IWA Wetland Project:** In 2020, a small wetland located on the east side of town at the intersection of County Road D47 and 275th Street. The wetland drains 10 acres of developed and cropped lands. According to the mayor, the installation of the wetland has greatly reduced flows that would have previously washed out residents' driveways and yards.

**270th St Ditch Project:** A large ditch system to divert runoff water from approximately 300 acres north of

270th Street to the Upper Wapsipinicon River was constructed. City officials and Buchanan County implemented this drainage system to protect the city from flash flooding associated with runoff from this area.

**Detention Berm:** A small detention berm was installed at the north end of Racine Avenue to mitigate overland flow from the northeast. The berm works to slow runoff from approximately 60 acres.



# Quasqueton Flood Resilience Action Plan Story Map

Follow the link below to view the ArcGIS Story Map associated with the Quasqueton Flood Resilience Action Plan:

<https://arcg.is/0j9eP>



## Works Cited

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UPPER  
WAPSIPINICON

WATERSHED MANAGEMENT AUTHORITY



NORTHEAST IOWA  
RC&D