

THE FLOOD RESILIENCE ACTION PLAN



GUIDEBOOK --- FOR PLANNERS

2021

THE FLOOD RESILIENCE ACTION PLAN: GUIDEBOOK FOR PLANNERS



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FLOOD RESILIENCE ACTION PLAN (FRAP)

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Figure I: City of Coralville-Highway 6-1st Ave,
Aerial of Flood 2008
Source: Iowa Flood Center



ACKNOWLEDGMENTS

This Flood Resilience Action Plan (FRAP) Guidebook (2021) is the culmination of years of planning and community engagement as an effort to reduce flooding and increase community resilience across Iowa. These efforts were made possible by the Iowa Watershed Approach and several watershed coordinators, planners, and community organizers who completed flood mitigation and resilience projects across several watersheds.

We would like to especially thank everyone who took part in the Coralville Flood Resilience Plan process, including city and county staff and officials who gave their time to interviews and workshops. We are deeply grateful to all the community members and residents who participated in the workshops, shared their personal flood resilient stories, and helped inform the plan. Finally, we would like to thank our partners, the Coralville Community Food Pantry and the Take A Kid Outdoors nonprofit organizations. Your support, contributions, and insights were critical and appreciated.

EXECUTIVE SUMMARY

Flooding is not simply an environmental issue; it is also a social justice issue. Floods have increased in frequency and magnitude due to climate change across the United States and abroad. This is bad news for everyone. However, socially vulnerable populations generally face greater concentrations of losses and have the least capacity to recover. As we mitigate floods, we also need to account for communities with varying resources. In other words, we must build community resilience in socially vulnerable populations to effectively address flood impacts. For communities where floods are becoming frequent, the need to act immediately is often at odds with acting equitably—which takes time. This is particularly true for rural and small communities, where resources are already limited and where existing national resilience frameworks might not take into account a rural context.

In this planning guide, we will discuss an approach for implementing a Flood Resilience Action Plan (FRAP) and provide

additional examples on how to do so within a context of compounded disasters. Compounded disasters occur when communities are faced with multiple threats one after the other. The most recent examples include the derecho storm in Iowa during the COVID-19 pandemic or the heavy winter storms and loss of power in Texas that also occurred during the pandemic. Compounded disasters overburden limited resources, especially in small rural communities. This guide aims to help planners build strategies that are innovative, flexible, and engaging to build community resilience during challenging times. After reading this guidebook, planners will have a set of initial tools and, most important, an understanding of the conceptual approach necessary to build community resilience to floods in rural communities.



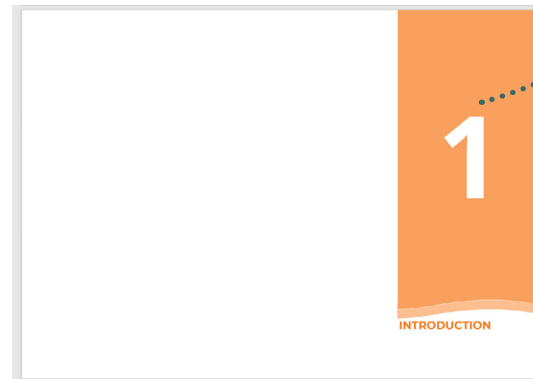
Figure II: Hamburg 2019
Source: Iowa Flood Center

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SOCIAL VULNERABILITY AND COMMUNITY RESILIENCE TO FLOODING

Flooding is in part a planning issue, such as deliberate development in flood zones which are then occupied by socially vulnerable populations. Socially vulnerable refers to those who have been historically marginalized from opportunities to anticipate, cope with, and recover from disasters. We see examples of social vulnerability across the United States. During Hurricane Katrina, for example, evacuation plans did not reasonably serve low-income communities and black households.¹ In a 2008 Iowa flood, elderly and Latino neighborhoods did not receive equitable buyout funds from flood mitigation efforts and planning.² To plan for a flood-resilient future, we must address the historical and existing social equity issues embedded within flood mitigation.

Traditionally, watershed planning and flood mitigation are highly technical processes led by technical experts and decision makers. These highly technical approaches are informational and actionable to experts; however, they are not accessible to nonexperts, especially for socially vulnerable communities. To attenuate further marginalization of vulnerable communities, it is important to incorporate community engagement efforts to inform, engage, and empower flood-vulnerable populations in the planning process. It is not enough to center watershed plans on infrastructural hazard mitigation and reduce water quality or quantity issues through technical hydraulic models. Although these outcomes reduce social vulnerability, they do not necessarily enhance community resilience. Rather than an outcome, community resilience is a process requiring planners and communities to work collaboratively on community-defined outcomes and through a procedural justice approach that enhances community capacity to influence decision-making.

Planners can be the bridge between traditional experts (engineers, local government, emergency management staff) and community members (residents, business owners, community leaders, and service providers) to empower community members in the planning process and build community resilience. This kind of planning takes time and boldness. It requires that we adopt a community organizing framework and to “move at the speed of trust” to build community partnerships.³ Implementing national resilience frameworks requires this level of local knowledge and engagement with particular focus on what processes are appropriate at the community level.

Community resilience and engagement are especially important when addressing flooding at the watershed level. Watersheds cross several community, city, county, and state borders. Any planning effort at the watershed scale to solve flooding and water quality issues across these communities cannot be successful without community engagement, building community capacity, and fostering

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SOCIAL VULNERABILITY AND COMMUNITY RESILIENCE TO FLOODING

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INTRODUCTION

Recent hazard events have shed light on how the most vulnerable populations are disproportionately affected by hurricane and flood disasters and have the least capacity to recover. As a result, national and local governments have begun to prioritize disaster management approaches that build community capacity and reduce vulnerability through national resilience frameworks. However, many of these frameworks, developed for urban or international settings, differ from the local context of rural communities in the United States. In contrast to major urban communities, rural communities face limited economic, human, and physical capital to address flooding. Additionally, rural communities often receive less attention from the national media when disasters strike, as was seen by the Iowa derecho storm in 2020, and often do not qualify for federal disaster assistance because they do not meet high population thresholds. Yet the environmental, social, and economic impacts of these disasters are substantial and cumulative, especially for vulnerable populations. Planners charged with building community resilience to flooding are faced with the challenge of adjusting these larger national resilience frameworks to a scale and context that is appropriate in the rural context.

Unfortunately, ongoing globalization and climate change will make global pandemics, such as COVID-19, more likely. Within the context of a global pandemic, addressing social vulnerability becomes more vital and challenging. Many communities faced compounded disasters during COVID-19. Iowa faced the derecho storm with wind speeds equivalent to a category 4 hurricane in some areas. Texas experienced severe winter storms with freezing temperatures and snow that caused widespread electricity outages. How do we plan for flood resilience in the context of compounded disasters and in an uncertain future?

This paper is a guide for planners leading a community-scale flood resilience action plan (FRAP) in rural or small urban communities. The main objective of the FRAP is to enhance community resilience to frequent flood hazards. The FRAP plan, as an end product, aims to identify community resilience opportunities in the near future; however, we also place emphasis on the planning process itself as an opportunity to build community resilience actively. To do so, planners must incorporate community engagement and capacity building such that communities are able to lead or partner in the planning process, and planners provide support. To illustrate this approach, we introduce a case study of a FRAP we implemented in a small town in rural in the context of the pandemic and derecho storm.

Figure 1.0: Flood in Rural Communities
Source: Iowa Watershed Approach

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Figure III: Flooded Iowa River
Source: Iowa Flood Center

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INTRODUCTION

INTRODUCTION

Recent hazard events have shed light on how the most vulnerable populations are disproportionately affected by hurricane and flood disasters; these groups have the least capacity to recover. As a result, national and local governments have begun to prioritize disaster management approaches that build community capacity and reduce vulnerability through national resilience frameworks. However, many of these frameworks, developed for urban or international settings, differ from the local context of rural communities in the United States. In contrast to major urban communities, rural communities face limited economic, human, and

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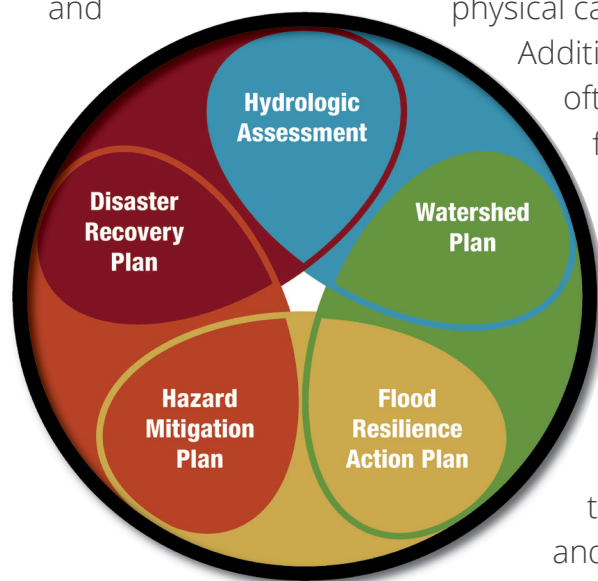


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2

**SOCIAL VULNERABILITY
AND FLOODING**

SOCIAL VULNERABILITY AND COMMUNITY RESILIENCE TO FLOODING

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Community resilience and engagement are especially important when addressing flooding at the watershed level. Watersheds cross several community, city, county, and state borders. Any planning effort at the watershed scale to solve flooding and water-quality issues across these communities cannot be successful without improving community engagement, building community capacity,

FLOOD RESILIENCE ACTION PLAN (FRAP)

and fostering buy-in along the way. This guidebook highlights a case study on building community resilience to floods at the local scale, but the elements presented here are building blocks to replicate this model in different communities and at larger scales. As climate change increases and the built and environmental infrastructure becomes more complex, working at the watershed scale will become paramount to reduce downstream flooding and water-quality issues. Planning with a community resilience framework will especially help downstream communities with socially vulnerable populations that are unseen and unengaged in traditional planning efforts.

Figure 2.0: Flood 2013
Source: University of Iowa



• References in this section:

¹ Blaikie, P., Cannon, T., Davis, I., Wisner (1994). *At Risk: Natural Hazards, People's Vulnerability and Disasters*. London and New York: Routledge.

² Peacock, W. G., Van Zandt S., Zhang Y., and Highfield W.E. (2014). "Inequities in Long-Term Housing Recovery after Disasters." *Journal of the American Planning Association* 80 (4): 356–71.

³ Muñoz, C.E., & Tate, E. (2016). "Unequal Recovery? Federal Resource Distribution after a Midwest Flood Disaster". *International Journal of Environmental Research and Public Health*, 13(5), 17. doi:10.3390/ijerph13050507

⁴ Adrienne Marie Brown, a prominent figure in community organizing across the nation, points out in her book *Emergent Strategy*, "Focus on critical connections more than critical mass—build the resilience by building the relationships" (p.42).

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**A COMMUNITY RESILIENCE
PLANNING FRAMEWORK**

A COMMUNITY RESILIENCE PLANNING FRAMEWORK

There are several national and regional resilience frameworks planners can use to inform their work. One example is the [Climate Resilience Framework \(CRF\)](#) from ISET International.⁵ The CRF was initially developed in cities across Asia and has since been implemented in urban areas in several countries, including the United States. The CRF takes a participatory action research approach to build resilience among people, institutions, and systems to address emerging, indirect, and slow-onset climate impacts and hazards. To implement the CRF, community planners go through three phases: (1) understanding the community resilience framework and establishing principles; (2) conducting vulnerability assessments at the community, institutional, and system levels; and then (3) conducting multiple cost-benefit analysis and capacity assessments for resilience planning. A major strength of this framework is the availability of detailed, step-by-step instructions on how to complete several technical processes in a participatory manner. We refer planners to the ISET webpage, which offers many documents on how to implement the CRF.

This guidebook is not a step-by-step guide on how to implement the ISET resilience framework; there are many resources by ISET that planners can use for that purpose. Rather, this guidebook identifies potential barriers planners may face in implementing resilience frameworks, and it illustrates possible solutions, while

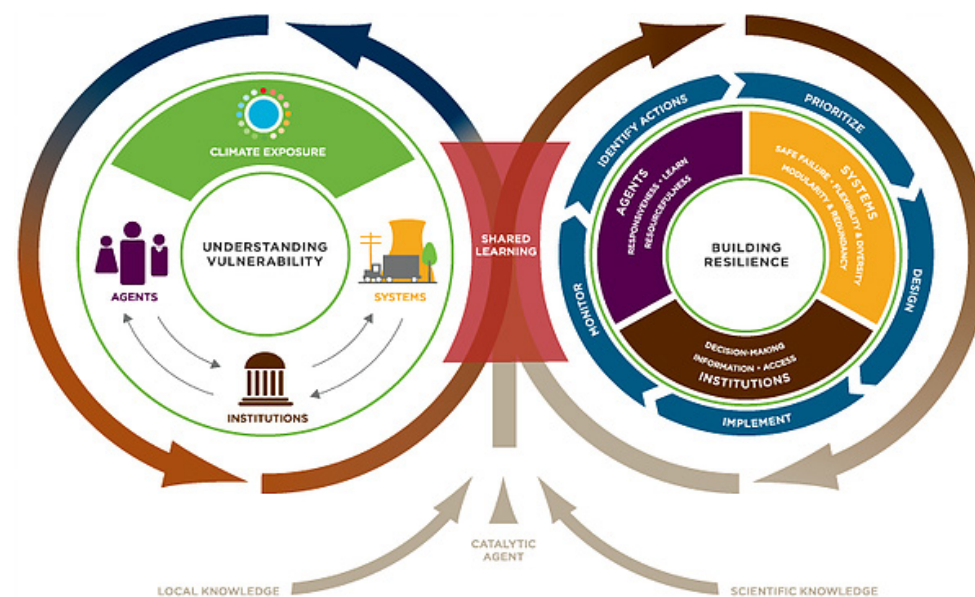


Figure 3.0: ISET Resilience Framework
Source: ISET International

Copyright © ISET International, 2014

keeping in mind the limited capacity rural communities have to respond to compounded disasters. The ultimate goal is to prepare planners to engage with socially vulnerable populations and build community resilience in any disaster context while recognizing potentially limited resources in rural settings.

We stress that even in the face of compounded disasters, engaging communities in the planning process is essential. In the face of multiple threats, the urge to act quickly is often at odds with the need to act equitably, which takes time. However, recent studies have illustrated that in these pivotal moments, planning with equity at the onset saves thousands of dollars, lives, and time

in the long term.⁶ It is the purpose of this guidebook to help planners address these barriers in hopes that they will integrate community engagement and equity planning in flood mitigation specifically, and community resilience in general.

• References in this section:

⁵ Climate Resilience Framework (CRF), ISET-international, 2014
<https://www.i-s-e-t.org/climate-resilience-framework>

⁶ Markanday, A., Galarraga, I., & Markandya, A. (2019). A Critical Review of Cost-Benefit Analysis for Climate Change Adaptation in Cities. *Climate Change Economics*, 10(4). doi:10.1142/s2010007819500143

“Resilience is the process of building community capacity to prepare for, respond to, and recover from disasters while maintaining some level of functioning and building toward equity.”

De La Torre, C. M.



*Figure 3.1 Flood 2013
Source: University of Iowa*

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**KEY AREAS FOR
COMMUNITY RESILIENCE
IN PLANNING**

KEY AREAS FOR COMMUNITY RESILIENCE PLANNING

This guidebook highlights nine parts of the planning process that are essential for building community resilience. These nine stages are not all-encompassing of all aspects of community resilience planning; however, we are highlighting them because they are most susceptible to the tension between recovering quickly versus planning at the speed of trust. In this section, we define each of the nine stages in terms of their overarching objective and goals in an ideal situation. In the next section we delve deeper into potential problems and solutions.

The nine areas are somewhat organized as much as possible in chronological order of planning. However, many of these areas, such as engaging community members and combatting inequities, should be ongoing efforts initiated as soon as possible. The figure to the right offers an easy way to remember these nine areas. As you read through this section, think about past planning efforts and whether there was an opportunity to implement in any of the recommendations below. If not able to, what were the barriers? The next section will help you think through some of those likely barriers.

• Nine Highlights of Community Resilience Planning:

1. Develop Contextual Understanding
2. Establish Community Relationships
3. Connect with Decision-Makers
4. Engage Community Members
5. Build Communication Bridges
6. Develop Collaborative Outputs
7. Combat Inequities
8. Distribute Outcomes Broadly
9. Advocate for Plan Adoption



Figure 4.0: Nine Highlights of Community Resilience Planning
Source: Authors

FLOOD RESILIENCE ACTION PLAN (FRAP)

**Develop Contextual Understanding**

Initial desktop analysis provides relevant data such as flood maps, public infrastructure locations, and U.S. Census data. It also helps planners understand how decisions are made in each community and what resources exist. It is important to develop an understanding of who the local stakeholders are in the community, their interests, and potential areas of disagreement that will need to be addressed throughout the planning process. The objective is to have a big picture understanding of flooding issues in the area, as well as barriers to address in the planning process.

**Establish Community Relationships**

Use initial research to identify where people who are both socially vulnerable and vulnerable to flooding live and work. Then verify that information, and update it through local knowledge. Develop relationships with community members by volunteering with organizations that provide social services, striking up conversations during canvassing, and attending community events. Identify the diversity in socially vulnerable populations rather than assuming a homogeneous group. The objective is to have a micro-level understanding of who is at risk, how they are at risk, and what specific flooding risk is applicable.

**Connect with Decision-Makers**

Planners should develop formal processes to engage decision-makers and community leaders and collect their input. This can include semi-structured interviews with city officials, emergency managers, and city staff. Other options include formal one-on-one meetings and small focus groups. Gather their priorities and level of understanding about flooding issues and community resilience. Whenever possible, include them in the planning process. The main objective is to identify champions in the community with resources that can advance the planning process and further develop leadership buy-in.

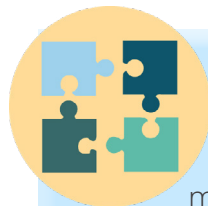
**Engage Community Members**

Develop multiple community engagement opportunities to interact with flood-vulnerable communities and the organizations that serve them. Provide opportunities for community input. This may include community surveys, door knocking, and offering opportunities for storytelling. The process should allow community members to identify and define their existing resilience, flood experience, and community-identified priorities. The objective is to identify community members and leaders who can active and vocal in the planning process.



Build Communication Bridges

After gathering input from decision-makers and community members separately, it is now time to build communication bridges and engagement platforms to help decision-makers and community members come together to problem solve. Host interactive workshops and leverage stories you have collected from the planning process. The purpose is to help decision-makers see micro-level needs of flood-vulnerable communities and to help community members establish connections with decision-makers and learn big-picture resources and barriers that apply to their needs.



Develop Collaborative Outputs

During the workshops in which both decision-makers and community members are engaging, develop opportunities for them to create outputs collaboratively. This may include community assessment maps, shared definitions and goals, visual aids describing flood experiences, and documented stories. The purpose is to aid in consensus building and create outputs that can be leveraged in the plan document. These tools help people communicate across professional and common language terms regarding flood vulnerability, mitigation, and resilience.



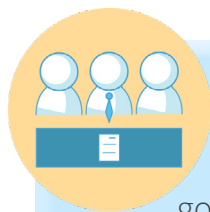
Combat Inequities

As you work with the community to identify problems and possible solutions, stay vigilant about opportunities to address existing inequities or prevent further marginalization. Existing issues such as affordable housing, access to foods, and poverty intersect with flooding and climate disasters. We must ensure that processes to mitigate the physical and environmental elements of floods do not result in further social and human inequities. Although issues such as affordable housing and poverty are beyond the task of flood mitigation, our planning must avoid exacerbating these problems.



Distribute Outcomes Broadly

Once the community engagement is completed and you have identified problems and solutions, draft initial findings in a way that is consumable by the public audience. Solicit feedback from the wider community, and provide opportunities for input. The initial findings can be discussed in public forums, such as open houses, websites, and formal presentations featuring both decision-makers and community groups. The objective is to provide transparency in the process and outcomes of the flood resilience plan and to identify points of contention moving forward.



Advocate for Plan Adoption

It is ideal to have the plan adopted by the local government or decision-making body. Throughout the process, planners have engaged with decision-makers to increase the likelihood of adoption. In this stage, planners might also consider formally organizing community members who have been part of the planning process and mobilizing the wider community to advocate on behalf of the plan adoption. Additionally, it is helpful to meet with decision-makers prior to the final presentation to understand barriers to implementation. The main purpose is to facilitate implementation of the plan by local officials or empower community members to advocate for its implementation. If it does not seem feasible that the plan will be adopted, follow up with decision-makers to see if there are aspects of the plan that they will champion.

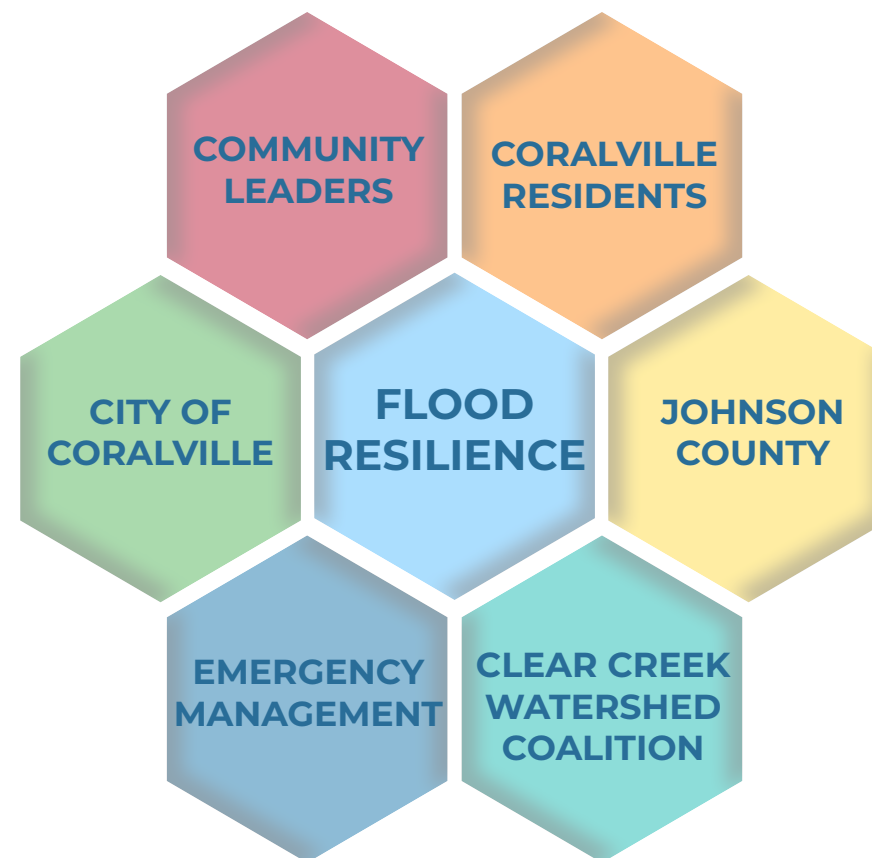


Figure 4.1: Coralville FRAP Stakeholders
Source: Authors

“During compounded disasters, planners should maintain a community resilience-building process rather than losing that opportunity by strictly adhering to the planning outcomes.”

De La Torre, C. M.

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**COMMON BARRIERS
TO PLANNING IN RURAL
COMMUNITIES**

COMMON BARRIERS TO RESILIENCE PLANNING DURING COMPOUNDED DISASTERS IN RURAL COMMUNITIES

In an ideal situation, planners would execute a process for community resilience building, and everything will go according to plan. But like published plans, the planning process is not meant to be fixed, never to be revisited again. Planning is dynamic, and that is what makes the planner's job exciting. In this section, we identify some of the common barriers to each of the nine stages outlined in the guide. We focus on the barriers most often presented by compounded disasters, especially in rural context. We understand these issues are not all-encompassing and hope that by identifying some of these barriers and alternate solutions, planners can continue to identify other innovative solutions. Ultimately, the goal of this guidebook is to provide planners with a working framework that helps planners move toward the target of building community resilience for flood-vulnerable populations. In this section, we delve deeper into some of these stages by discussing potential problems and walking through potential solutions. We also present a case study of real-life examples, highlighting the Coralville FRAP as a case in point.

An aerial photograph showing a rural farmstead completely surrounded by floodwater. The water is a murky brown color. Several buildings are visible, including a large red barn with a white roof, a smaller white barn, and a house with a light-colored roof. The surrounding fields are green, but the water has inundated the areas around the buildings. In the background, a large body of water, possibly a lake or reservoir, is visible under a clear sky.

Figure 5.0: Flooded Farm
Source: Iowa Flood Center



DEVELOPING CONTEXTUAL UNDERSTANDING



POTENTIAL CHALLENGE:

Limited Data

In rural communities, existing data on demographics and local resources might not be available at small enough scales to be relevant for the project area. In addition, local government capacities for GIS-based data or recent inventory can also be limited due to small budgets that limit updates or the ability to maintain personnel with such specialized skills.



POTENTIAL SOLUTION:

Partner with local organizations

We encourage planners to make connections with local universities, state agencies, and regional nonprofits that may have similar data available. Often nonprofit organizations maintain data on the populations they serve, which includes socially vulnerable populations, and this can be a point of reference. Planners need to build trusting relationships to gain access to this data because it is not often publicly available. Reach out to professors in environmental science and those conducting participatory action research; they may have students collecting similar data for class purposes. Caution is always required when using any data, but these sources may provide planners with initial direction on where to investigate further.



*Figure 5.1: Nishnabotna Flood Resilience
Source: JEO Consulting Group*



BUILDING COMMUNITY RELATIONSHIPS



POTENTIAL CHALLENGE:

Lack of Community Trust

Building community relationships is hard. The biggest barrier to building relationships is access to community members and gaining their trust. In-person access is particularly challenging during public health pandemics requiring social distancing and in any post-disaster context, such as floods, hurricanes, and winter storms. Immediately after a disaster, in-person interaction is often dangerous or impossible. Nonetheless, building trust and engaging with community members are



*Figure 5.2: Group talking about subdrain improvements
Source: Iowa Flood Center*



POTENTIAL SOLUTION:

Be helpful, be flexible, be genuine

Recognize and accept that building trust takes time. The earlier planners can engage with community members, the better. If planners are launching their community engagement during a major disruption or disaster, pause and regroup. Reconsider the plan rather than continue with it. Adjust any activities that would further endanger vulnerable populations, and build in new activities that actually meet the most immediate needs of the community. Any activities you can conduct that build general community resilience to any disaster will have a positive impact, even if they are not directly aligned with your primary goals. In addition, it will help you gain the trust of community members because they will see the planner's genuine effort in the process, rather than a predefined outcome.

■ CASE IN POINT: CORALVILLE FRAP PARTNERING WITH LOCAL ORGANIZATIONS

The weekend before we, the planners, were to launch the community engagement strategy, COVID-19 entered the community. On the first day of that week, we had to revamp about 50% of the community engagement strategy, which relied on large in-person activities. In two weeks, we developed a new strategy that integrated online interactive workshops and several smaller socially-distant in-person activities rather than a few larger in-person events. This resulted in the development of two online workshops and three in-person community survey events. The in-person community surveys took place in the parking lot of a local food pantry while members were awaiting their groceries. This space was outdoors in a place trusted by renters and low-income residents because they interact with the local food pantry on a weekly or bi-weekly basis. The partnership with the local food pantry was established before COVID-19, and the executive director of the organization was a partner in the FRAP project. The establishment of the partnership before COVID-19 was key because in the middle of the pandemic the capacity of the organization became quickly limited. We also volunteered on a weekly basis at the local food pantry, which



Figure 5.3: Community Resilience Planner and Community Organizing Planner conducting a survey
Source: Authors

enabled us to develop a community survey strategy that did not impede service delivery and was quickly approved by the local food pantry.



CONNECTING WITH DECISION-MAKERS



POTENTIAL CHALLENGE:

Lack of political priority or consensus

Within a community, city, or county, local government officials have different priorities and levels of understanding related to flood resilience. When engaging decision-makers, sometimes it is unclear what their priority is and whether they will give access to local resources and knowledge. In addition, some decision-makers may have an interest in flood resilience, but having agreement across all decision-makers is less common.



POTENTIAL SOLUTION:

Listen deeply and navigate political waters cautiously

During meetings with government officials and key public administration staff, outline the planning process and objectives for building community resilience. To help establish a good working relationship with government officials, recognize their previous or current efforts to mitigate floods. Listen carefully or directly ask about their concerns regarding the process or the outcome of the plan. These concerns are likely to be only the tip of the iceberg, and it is up to the planners to mitigate future barriers. Having larger meetings with staff and officials to get a sense of group dynamic is key. It is also important to leverage one-on-one sessions to get information not likely to be shared in group settings. Whenever possible, bring the voices of the community to address your points, whether that is co-presenting with a community member or sharing their stories.



*Figure 5.4: Coralville Mayor John Lundell with former State Senator Bob Dvorsky
Source: Iowa Flood Center*



ENGAGING COMMUNITY MEMBERS



POTENTIAL CHALLENGE:

Diverse community vulnerability

Gathering meaningful input and evidence from community members is challenging when planners are not prepared to understand vulnerability from diverse perspectives. It is possible that communities vulnerable to floods include different sub-groups that can complicate planning solutions. Furthermore, marginalized communities such as immigrants and recent migrants might not be represented in the initial desktop analysis. In addition to building trust, planners must also consider any language, reading, and cultural differences required to work with these populations.



*Figure 5.5: Nishnabotna Flood Resilience
Source: JEO Consulting Group*



POTENTIAL SOLUTION:

Diversify communication and outreach

Obtain professional and culturally appropriate translations. Google translation does not reliably provide accurate or culturally appropriate translations. At the outset, planners should build a diverse team made up of community members and leaders. Creative ways to access community members may include setting up multi-language flyers and incentives in key community spaces, such as small ethnic stores and laundromats. Remember that what is accessible to some is not accessible to others. If your outreach strategy involves online workshops, partner with local libraries that lend hotspots and laptops to community members.

■ CASE IN POINT: CORALVILLE FRAP DIVERSIFYING COMMUNICATION AND OUTREACH

A few weeks before we launched the second online interactive workshop, a derecho storm with wind speeds as high as category 3 and 4 hurricanes affected the Iowa community, especially Cedar Rapids. The Coralville community also experienced some damage, particularly mobile homes, and many lost electricity and internet access for a couple of days. Low-income Latino and Sudanese school-age children were struggling with an education gap made worse during the pandemic and online learning, in part due to pre-existing lack of access to internet, computers, and computer skills. The widespread loss of internet from the derecho storm further marginalized these socially vulnerable community members. To attenuate this barrier, we partnered with the local public library, which was lending mobile hotspots and laptops to library members. We offered support by translating the flyers into Spanish and distributing them in key areas, such as ethnic-based min-markets and laundromats to reach minority and renter populations. In addition, through a collaboration with a local food pantry and a Latinx organization, we distributed groceries to affected mobile home communities, while sharing flyers from the local food pantry and the translated library resources. The library was able to benefit from the free translation and the ability to share their resources

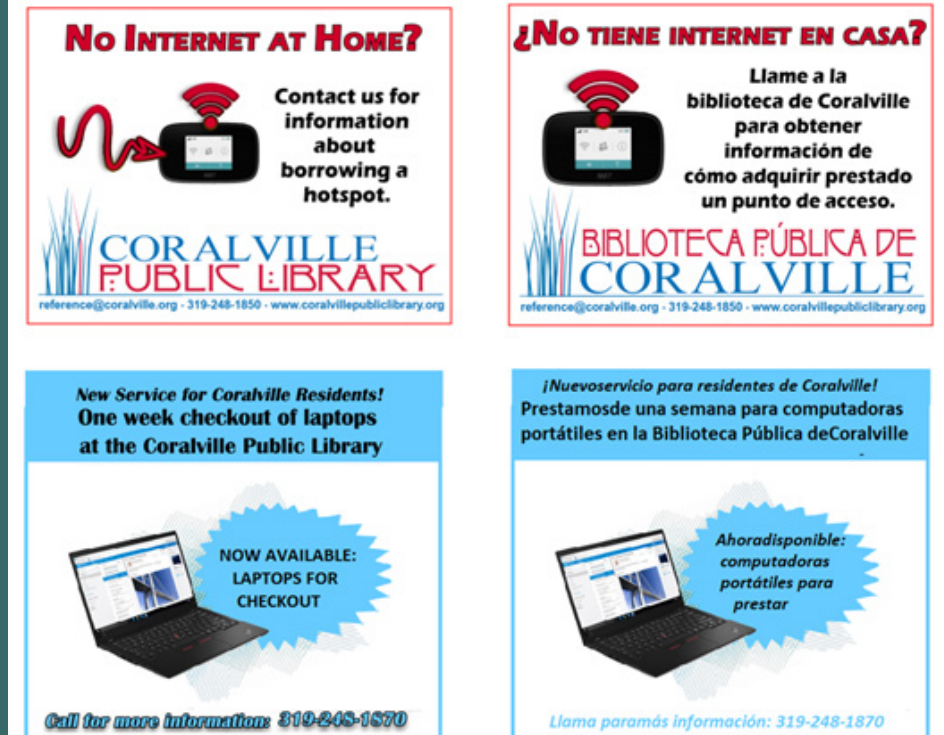


Figure 5.6: Translated library flyer of resources
Source: Authors

more widely. At the same time, we helped meet the immediate needs of the derecho-affected communities and reduced barriers for these communities to participate in our own FRAP online workshops. These efforts to meet immediate needs more broadly, such as groceries, internet, and computers, can also build long-term capacity and reduce barriers in broader community engagement.



BUILDING COMMUNICATION BRIDGES



POTENTIAL CHALLENGE:

Communication gaps

In rural settings, access to computers, the internet, and other communication technologies is not equitable for socially vulnerable populations. However, in the context of COVID-19, there was an increased reliance on online communication tools because of the limited ability to meet in person. Disaster events, such as winter storms and hurricanes, can destroy vulnerable infrastructure in rural communities that is infrequently maintained. Thus, establishing communication bridges between community members and decision-makers via online communications is difficult.



Figure 5.7: Rural Stakeholder Meeting Vinton, Iowa for the Middle Cedar Watershed
Source: IVRCD



POTENTIAL SOLUTION:

Create capacity-building opportunities

Planners need to be aware of technology gaps within communities. They can partner with nonprofits or public libraries that may have programs to lend laptops and internet hotspots to residents. During COVID-19, many volunteers helped low-income non-English-speaking students to learn how to connect to Zoom and use the internet. Planners can partner with such volunteers and organizations to further enhance the capacity of vulnerable populations. The point is to not see barriers as limitations, but rather as an opportunity to establish partnerships, build capacity, and promote resilience in the community.



DEVELOPING COLLABORATIVE OUTPUTS



POTENTIAL CHALLENGE:

Lack of community input

Engaging diverse communities can be challenging when community members have varying levels of technology skills, English proficiency, and experience in community participation. If our engagement efforts are not accessible, it will prevent community input and potentially bias any results and conclusions from those efforts. In addition, not balancing opportunities for everyone, especially vulnerable populations, may result in those who already have access and influence over decision-making to dominate conversations and collaborative outputs.



POTENTIAL SOLUTION:

Facilitate inclusive and accessible engagement activities

Setting community agreements and values at the onset of workshops and activities is key. These could include the value to listening to others, the need to step down if others have not participated yet, and the importance of showing mutual respect. In addition, when there are power dynamics, it is important to break out conversations to cohesive groups to begin dialogue and have an opportunity to listen to all sides; then develop questions to guide the conversation as a larger group. Recognize that due to learning and communication preferences, disabilities, and technology skills, some participants may not be able to engage in the



*Figure 5.8: Community members engaging with decision-makers.
Source: Iowa Flood Center*

■ CASE IN POINT: CORALVILLE FRAP FACILITATING INCLUSIVE AND ACCESSIBLE ENGAGEMENT ACTIVITIES

During one of the online workshops, we had decision-makers and community members create a flood resilience asset map. City staff, city administrators, nonprofit leaders, and community members were in attendance. Participants separated into smaller groups to ensure the participation of every attendee. We completed an asset map using an online-collaborative mapping tool though Google. To reduce barriers to participation, we developed a short training to use the mapping tool as an ice breaker activity. We asked participants to map a spot in the community and share why it was their favorite place. This low-stakes activity provided them an opportunity to share stories and a sense of common place, but also to begin to interact with the online tool. We were able to provide assistance with the tool during the icebreaker and address any issues before the asset map activity. Finally, during the asset mapping activity, participants were asked to identify areas of:

- (1) flooding or flooded basements,
- (2) critical community resources, and
- (3) opportunities to build community resilience resources

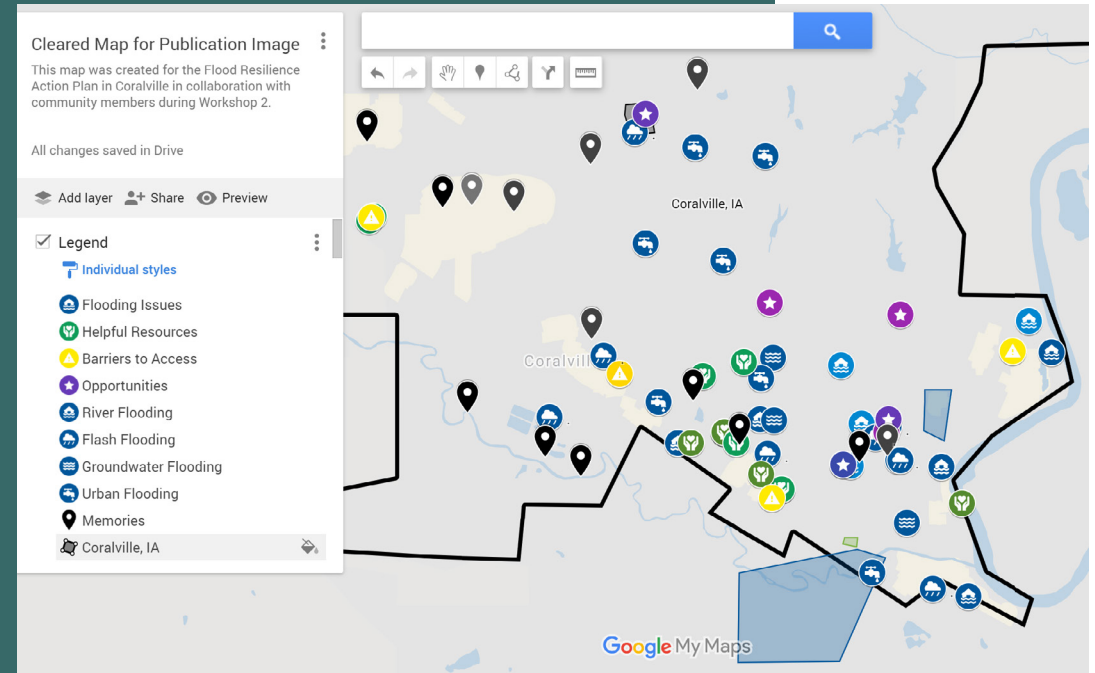


Figure 5.9: Coralville FRAP Participatory Asset Map
Source: Authors

The map was able to corroborate previous findings on flood issues gathered through interviews and surveys. In addition, the mapping activity engaged community members and decision-makers through a collaborative process that facilitated communication across both groups and served as a point of reference.



COMBATTING INEQUITIES



POTENTIAL CHALLENGE:

Green gentrification

Flood mitigation efforts such as flood walls, property buyouts, and increasing ecosystem services are at risk of creating social inequalities. For example, flood walls and other structures redistribute water and may increase flood risk in other areas, often low-income communities. In addition, flood buyouts and the greening of whole neighborhoods still has an impact on remaining neighbors and adjacent neighborhoods, which can either reduce property taxes contributing to poverty or increase them to a point where existing long-term residents are essentially gentrified.



Figure 5.10: Community members engaging
Source: Iowa Flood Center



POTENTIAL SOLUTION:

Advocate for environmental justice

There are several case studies that illustrate the positive and negative social impacts of different flood mitigation efforts that may feel like gridlock.^{7,8} The bottom line is that at the heart of environmental and watershed planning, we must also view social and economic impacts through an equity lens. Environmental justice calls for us to engage community members, build capacity, provide real decision-making influence, and increase community representation in the planning process as the path forward to making flood mitigation decisions. In many ways, the FRAP process we have outlined in this guidebook is aligned with environmental justice recommendations that aim to prevent the displacement and gentrification of low-income and socially vulnerable communities. This work cannot be completed in the hands of planners alone; it requires strong partnerships and collaborations at all levels, but planners and community organizers are uniquely positioned to bridge those relationships between the communities and environmental professionals.

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6

**A CASE STUDY:
THE CORALVILLE
ACTION PLAN**

CASE STUDY: THE CORALVILLE FLOOD RESILIENCE ACTION PLAN



Figure 6.0: FRAP — Flood Resilient Action Plan logo

Source: Authors

Throughout the previous section, we highlighted key elements in the [Coralville FRAP](#) that serve as examples on how to adapt a resilience building process for rural communities and in the face of compounded disasters. The ability of planners to adapt, pivot, and innovate in the midst of compounded

disasters requires resilience from the planners. If done right, it can build resilience for the communities they as well. In this section, we formally introduce the Coralville FRAP as a case study and draw on the bigger takeaways of community resilience planning.

The Coralville FRAP was funded by the Iowa Watershed Approach as a community planning project for the city of Coralville. Coralville has invested in extensive city-wide flood and stormwater protections and mitigation to avoid a recurrence of impacts of the devastating 2008 flood. The 2008 flood resulted in city-wide damage to businesses, homes, and municipal services. Today, Coralville is uniquely positioned to expand and support neighborhood-level flood resilience that is less focused on riverine flood impacts from the Iowa River and more focused on flash flooding and residential



Figure 6.1: 2008 Coralville, Iowa Flooding - Iowa River Power Restaurant
Source: City of Coralville

displacement from nearby creeks and stormwater infrastructure. The purpose of the Coralville FRAP is to provide policy pathways and community-accessible tools to empower and protect flood-vulnerable community members.

To create a plan that aims to assist the most flood-vulnerable community members, our team developed a strategic and deep community engagement process. The goal of the Coralville FRAP was to engage renters, low-to-moderate-income households, and ethnically diverse communities, service providers, and the broader

FLOOD RESILIENCE ACTION PLAN (FRAP)

Coralville residential community in the planning process. Originally, our engagement strategy included two large town halls, several community events, door knocking, and information booths in key community areas to engage people in one-on-one and large-group in-person settings. However, as the Coralville community faced COVID-19 in mid-March and then the derecho in early August, much of the community engagement plan needed to be adapted.

Our team had to pivot away from larger in-person activities and instead leverage large online efforts and smaller in-person activities to protect the safety of community members. The immediate barrier to the new strategy was access to socially vulnerable households, including those without internet or computers, as well as those with limited online skills, language barriers. We also needed to engage with renters and persons with disabilities. To adapt, we integrated several efforts to address specific barriers for different vulnerable populations. These efforts could no longer seek community participation through large in-person town hall meetings. Instead, we focused on strategies that increased the ratio of vulnerable populations from the general population to build community

resilience more effectively.

The public outreach process included one-on-one community interviews, smaller group meetings, an interactive website, an in-person community survey on paper, an online nonprofit social network survey, translated printed educational materials, online participatory workshops, residential postcard outreach, a business pledge campaign, and social media/multimedia (videos). These activities and mobilizing campaigns resulted in storytelling that created a collective definition for resilience that is specific to Coralville residents, and the collaborative creation of a community asset map that identifies opportunities and barriers to flooding and stormwater issues. This plan ultimately identified five recommendations. These include the recommendation to provide a voluntary buyout program for low-income residents who are facing systemic stormwater flooding and launching a survey that focuses specifically on renters and identifies specific housing and flooding needs for low-income residents. We also identified opportunities to strengthen the existing nonprofit networks that serve the area and provide incentives for cross-collaboration that create new or



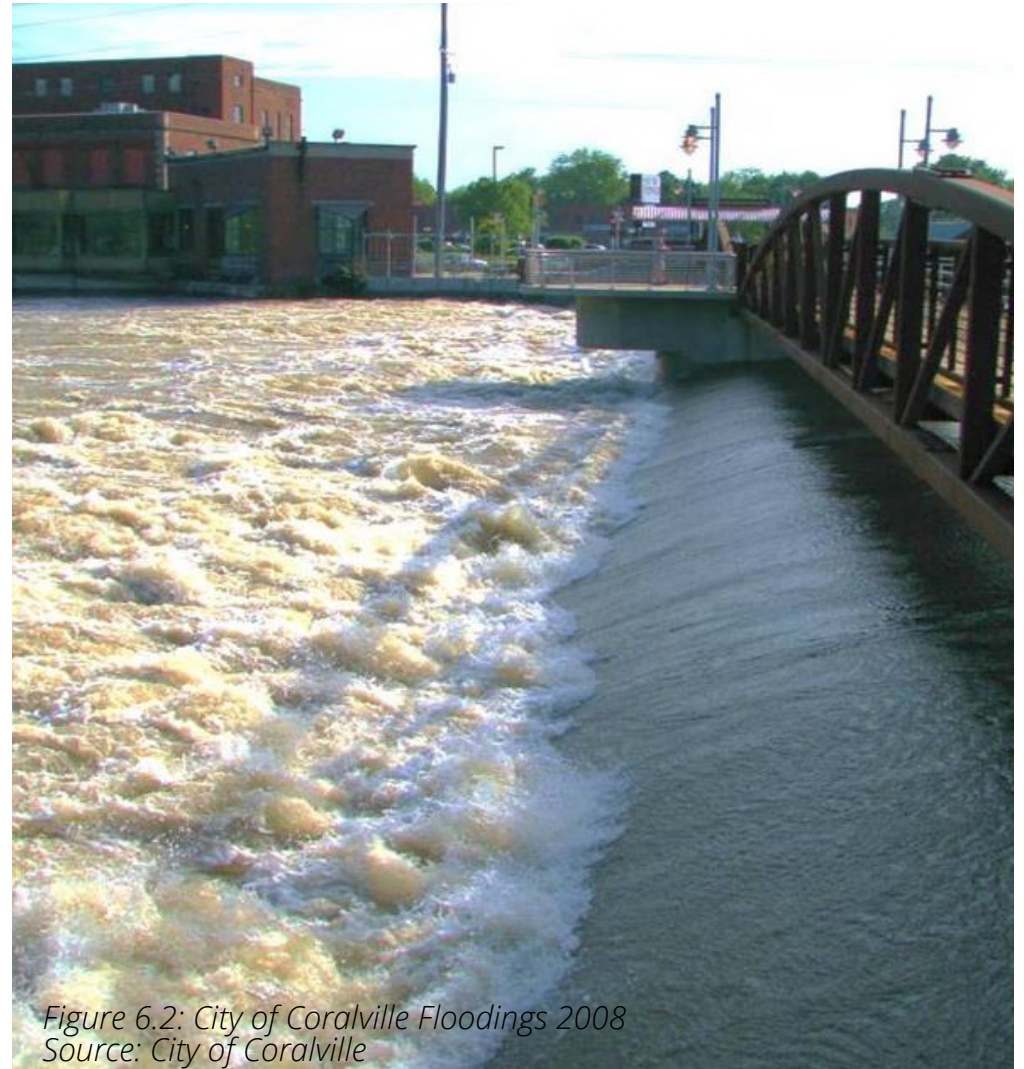
The Iowa Watershed Approach (IWA) is collaboration among many Iowa partners that is funded through the Housing and Urban Development (HUD) National Disaster Resilience Competition. The IWA project is an Iowa statewide effort that aims to build flood resilience and mitigation across nine watersheds in the state of Iowa. The project seeks to improve water quality, reduce flood risks, increase resilience, and meaningfully engage stakeholders at the watershed scale.

FLOOD RESILIENCE ACTION PLAN (FRAP)

enhanced essential services during emergencies. Collectively, the findings and recommendations are about identifying strengths and areas to improve equity and reduce flooding.

Even though we pivoted and adapted to take advantage of the best available opportunities to engage vulnerable populations, our community engagement and capacity building efforts were hampered by the pandemic. Partnering with key service providers, such as the local food pantry, was a key element to reach and assist people during compounded disaster events. However, outreach to the wider Coralville community at a larger scale was not possible due to widespread COVID at the time. Ideally, more residents would have been engaged through the outreach process; however, the need to protect the health of community members and partners remained the number one priority. The opportunities to attend annual community festivals and events, such as the Coralville Fourth Fest and the large community meal hosted by the food pantry, were not realized; all of these events were cancelled due to the pandemic. Additionally, engagement with city staff and decision-makers was lessened due to the high demand, on their time and resources shifted to meet public service needs, such as moving staff to remote work, creating online access to city council meetings, developing contact-less bill payment processes, and so on. Due to these COVID-related constraints and limitations, the initial goal of reaching more community members had to be recalibrated. Still, the planning process was key to avoid losing the opportunity to engage socially vulnerable communities in a meaningful way. We hope this guidebook will be a useful tool for others to navigate this approach

during a difficult planning context brought on by climate change and social inequities.



*Figure 6.2: City of Coralville Floodings 2008
Source: City of Coralville*

7

CONCLUSIONS

CONCLUSIONS

The first step in developing a community resilience plan is to make the commitment as planners to do the slow, challenging, and creative work of engaging and working alongside socially vulnerable communities. Remembering that this work moves at the speed of trust and requires flexibility, innovation, and resilience will help planners stay on track. Although challenging, the work is rewarding throughout the entire planning process, as we see community members engage with us, each other, and decision-makers for a better future. At the end of the planning process, you will have community members who have become planning partners and are likely to continue to build their capacity to be better prepared for the next flood or compounded disaster.

Working with rural communities and socially vulnerable populations requires problem-solving and flexibility. We hope that this guidebook has showcased examples of how to deal with these challenges as they arise. We specifically highlighted the nine stages in the community resilience planning process that have unique challenges, especially in rural communities facing limited resources due to compounded disasters. We hope that through this guidebook and the examples provided, you will understand the ethos and planning approach required to develop a community resilience process, rather than get lost in specific planning outcomes. In the face of challenges, planners may be pressured to focus on specific outcomes at the cost of community engagement. This would be a mistake. Remember, community resilience building

is in the process.

Learning to do this work is not only an investment in the community but also in you as a planner. As climate change increases, disasters become more severe, and the call for diversity, equity, and inclusion in all matters becomes more salient, there will be a need for the next generation of planners who are willing to take the call and do the work. Learning to do this work is important. Remember, building resilience includes building community capacity. As you gain these skills and become an effective resilience planner, ensure that you are building the capacity of community members and partners



Figure 7.0: Flood 2014 — Rock Valley in northwest Iowa
Source: Iowa Flood Center

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