



FLOOD AND SOCIAL RESILIENCY SUSTAINED INNOVATION IN DUBUQUE, IOWA

QUICK FACTS – DUBUQUE, IOWA

Founded in 1785; incorporated in 1883

31.6 square miles, located on the Mississippi River where Iowa, Wisconsin, and Illinois meet

Population around 60,000; over 90% white; 10.4% of families below the poverty level

26,000 housing units, over 63% owner-occupied

Full-service municipal government with six operating funds (\$142 million) and six capital funds (\$49 million)

Council-Manager form of government

Mayor directly elected, at-large with a four-year term

Six council members elected by ward; two elected at large on a staggered basis, serving four-year terms

Michael Van Milligen, City Manager since 1993

Point of Contact: Deron Muehring, Civil Engineer II

INTRODUCTION

Hit with severe flooding at the turn of the 21st century, Dubuque has worked hard to get a positive return on this bad luck through sustained public engagement and funding tenacity. This case study explores lessons learned from how the city has approached flood and social resiliency in the Bee Branch watershed for approximately 20 years.

BEE BRANCH – DO THIS WITH US, NOT FOR US

The Bee Branch neighborhood had six Presidential Disaster Declarations between 1999 and 2011, with estimated damages of \$70 million. In the Bee Branch flood area, 69 percent of the population earn less than 80 percent of the median income. The story is told of the 1999 storm that included a tornado warning. As people were huddled in their basements, the basements began to fill with water.

To address the recurrent flooding and critical conditions from the 1999 storm, the city engineers internally developed a plan to address the issue, which included acquiring several homes. The public's reaction was swift and negative. In a pivot, the city recognized, according to the city manager, that when people need help, they want the city to "Do this with them, not for them." The mayor and council created a 40-member resident task force to develop funding options and engage in a community conversation. The task force first met in June 2002 and met six times over eight months to develop their funding recommendations.

The residents' task force recognized the need for a reliable source of local funding, and recommended the creation of a stormwater utility fee. Rather than being exempted, entities that do not pay property taxes (churches, nonprofits, and universities), receive a 50 percent reduction in the stormwater fee.

In FY 2022, the average residential stormwater fee was \$9.00 a month. The anticipated revenue was approximately \$5.4 million.

Additional citizen advisory committees provided input on the design and location of various plan improvements. The citizen task force's recommendations still required the acquisition of approximately 100 homes, but because of the community process, there was community acceptance. Eminent domain was not required for any of the properties.

THE APPROACH - TAKE THE LONG VIEW

According to Deron Muehring, overall project manager, the scope of the Bee Branch watershed seemed overwhelming. The city reports that a 2009 FEMA study indicated that 1,373 homes and businesses in the watershed were at risk. The 70 affected businesses employed over 1,400 people with more than \$500 million in annual sales.

With public support, the city developed a comprehensive plan that would be a "multi-phased, fiscally responsible investment to mitigate flooding, improve water quality, stimulate investment, and enhance quality of life." The cost is projected at around \$250 million. By taking a comprehensive approach, the city has been able to prioritize projects and implement them over time, creatively developing opportunities and seizing others as they arose. Implementation has now been in process for almost 20 years and has components planned into 2040.

As of 2022, five phases have been completed, three phases are in progress, and four phases are scheduled for the future. To support the commercial sector, the projects include extensive rehabilitation of sewer and water systems, partially supported by funds from the Economic Development Administration.

BEE BRANCH RESTORATION

The "backbone" of the project, according to the city manager, was the Bee Branch Restoration Project. The creek had been enclosed with approximately one mile of storm sewers. To mitigate flooding, the creek was re-opened (daylighted) and the floodplain restored. By taking a systems approach beyond solely flood mitigation, the city was able to create a linear park with extensive recreational and educational activities. The project also includes extensive environmental design elements that support eco diversity and clean water.

The effectiveness of the project was tested in 2017, when 4.9 inches of rain fell in less than 24 hours. Property damage was minimal. A similar storm in 2002 had created \$11.6 million in damages.

The restoration project cost was \$90 million and was funded by general obligation municipal bonds, state revolving loan funds, \$64 million in grants, and various other government and private resources. In addition to flood mitigation, the city views the project as a regional tourist attraction and catalyst for investment.

BEE BRANCH HEALTHY HOMES

In 2016, the city created the Bee Branch Healthy Homes Resiliency Program to address flooding and social resilience. This is an \$8.4 million program of forgivable loans for 275 homeowners and rental units for low- to moderate-income residents. Improvements include foundation repairs and modifications, furnace replacement, water heater replacement, basement window repairs, mold and mildew remediation, lead paint and asbestos remediation, sump pump repair/installation, and property drainage improvement.

The objectives of the combined program are "to inform, motivate, empower, and educate residents, homeowners, and businesses on how to break the links among unhealthy housing, unhealthy families, and unhealthy neighborhoods." The city believes that "informed and engaged residents create a resilient community."

FUNDING

Teri Goodman, Director of Strategic Partnerships, described the funding for the overall plan as "piecemeal," and only achievable through a continuous search for funding opportunities, a willingness to challenge eligibility standards, and an ability to adapt to the requirements of the funders without compromising the project. A key to acquiring funds was having the comprehensive plan that could be used whenever an opportunity arose. Muehring said that if planning had been delayed until funding became available, it would be too late.

Sixteen different funding sources are documented, generating over \$249 million in resources as of 2022. Major funding includes \$98.5 million from the Iowa Flood Mitigation Program, which uses state sales tax increment financing and \$31.5 million for a Housing and Urban Development National Disaster Resilience Competition. These and other grants and loans are supplemented by the city's stormwater utility.

The city also issued debt to support the project, which was the one significant area of concern that has arisen over the past 20 years of the project. In 2016, Dubuque's outstanding debt peaked at 90 percent of its statutory limit of five percent of property valuation. The mayor and council established a debt reduction plan to drop the debt to 41 percent of the statutory limit in fiscal year 2023.

SUCCESS FACTORS AND TAKEAWAYS

- Multiple factors contributed to Dubuque's success in this massive flood mitigation plan:
- The severe flood of 1999 and others were used as catalysts for action.
- The residents' task force established public ownership of the plan and political support.
- Public support enabled the city to develop a comprehensive, multi-phased approach, including the creation of a stormwater utility.
- Dedicating staff to continuously and creatively seek funding opportunities enabled the city to secure unprecedented resources.
- An extensive communications plan and a website provided full documentation of the project and transparency.

Among the features of the communications strategy is extensive documentation of before and after conditions. A short video on YouTube tells the story of Cletus Cashman, who was a beneficiary of the Healthy Homes program. At the age of 90, he finally no longer fears that his home will be flooded. In the video he calls the project a godsend, while wistfully reflecting, "I wish this had happened thirty or forty years ago; it'd be nice when my wife could have enjoyed it, too."

While the freedom from the fear of flooding came late in life for Mr. Cashman, the sustained work of Dubuque means that others in Bee Branch will never have to experience the stress and loss endured by those in the past.

REFERENCES

This report was supported by interviews, emails, and supplemental materials from the following:

- Michael C. Van Milligen, City Manager
- Deron Muehring, Civil Engineer II
- Teri Goodman, Director of Strategic Partnerships
- John Tharp, Program Coordinator Bee Branch Healthy Homes
- Randy Gehl, Public Information Officer

WEB RESOURCES - DUBUQUE

Extensive information is available from Dubuque's homepage for the [Bee Branch Watershed Flood Mitigation Project](#) and the [Bee Branch Healthy Homes Resiliency Program](#)

[Annual Comprehensive Financial Statement, Fiscal Year Ended June 30, 2021](#), City of Dubuque

[2022 Resident's Budget Guide](#), City of Dubuque

YOUTUBE VIDEOS

[Bee Branch Creek Restoration](#)

[Bee Branch Healthy Homes: Cletus's Story](#)

WEB RESOURCES – STATE OF IOWA

[Iowa Flood Center](#)

2013, [State of Iowa](#) Action Plan – Phase II, Community Development Block Grant.