



W. 32nd St. Detention Basin



Green Alley



Bee Branch Creek Restoration



A multi-phased, fiscally responsible investment to mitigate flooding, improve water quality, stimulate investment, and enhance quality of life within the Bee Branch Watershed.

The Bee Branch Watershed is the area hit hardest by flash flooding during significant rain events with much more than “just a little water in the basement.” Too frequently, it is flooding that inundates water heaters, furnaces, and electrical boxes, and can cause fires. It rushes down streets from curb to curb -- stalling vehicles, stranding motorists, displacing manhole covers, and damaging pavement, water mains, and stormwater and sanitary sewers. The Bee Branch Watershed Flood Mitigation Project is a multi-faceted approach to addressing the severe and frequent flash flooding experienced in the watershed.

The Need

Imagine waiting out a tornado warning with your family in the safety of your basement when, suddenly, heavy rains produce flash flooding and water starts pouring into the basement around you. Do you stay in the basement at the risk of electrocution, fire, or drowning? Or go upstairs and risk the tornado? Bee Branch residents have faced this difficult decision.

- Flood disasters have repeatedly impacted residents and employees of the businesses within the watershed. Between 1999 and 2011, **six Presidential Disaster Declarations** were issued with total damage estimates of almost **\$70 million**.
- The flooding in the Bee Branch Watershed also has had a **major impact on public infrastructure and City services both within and outside the flood-impacted area**. Direct public sector costs include emergency response activities, street and utility infrastructure repairs, and debris clean-up and removal. The disruption of essential City services and street closures due to flooding and damage also has a **negative economic impact on the entire community**.
- Based on a 2009 Federal Emergency Management Agency (FEMA) study, **1,373 homes and businesses** in the watershed are prone to flooding, including **70 businesses that employ over 1,400 people and have over \$500 million in annual sales**.
- The Bee Branch Watershed Flood Mitigation Construction Project will **prevent an estimated \$582 million in damages** over the 100-year design life of the project and create an incentive for individuals and businesses to reinvest in this vital area of our community.



Flooded Basement



Street Flooding

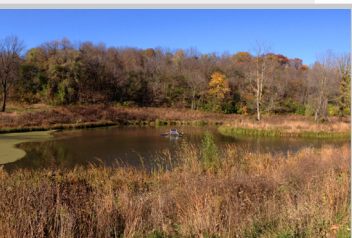
Infrastructure Improvements



The combined infrastructure improvements will reduce the volume of stormwater, slow the rate of stormwater through the upper watershed, increase the safe conveyance of stormwater through the flood-prone area, and provide floodwater protection to the City's water treatment plant on Hawthorne St.

Carter Rd. and W. 32nd St. Detention Basins - Complete

The Carter Road Detention Basin, completed in 2004, is an earthen dam approximately 350-feet long by 40-feet high. It can hold 59.3 million gallons of stormwater runoff and is designed to reduce peak flow of runoff during a 100-year rain event by 98 percent. The storage capacity of the W. 32nd Street Detention Basin, completed in 2009, was more than doubled from 15 million gallons to 32 million gallons of water. Located in upper watershed, the basins hold back stormwater and release it slowly downstream allowing more time for the lower, flat areas to drain.



Bee Branch Creek Restoration - Complete

The Bee Branch Creek Restoration involved replacing almost one-mile of storm sewer with a creek and green space that resembles the one that traversed the area approximately 100 years ago. This "day-lighting" of the buried Bee Branch Creek allows stormwater from flash floods to safely move through the area without flooding adjacent properties. It is split into two distinct sections: the Lower Bee Branch, completed in 2011, and the Upper Bee Branch, completed in 2017.

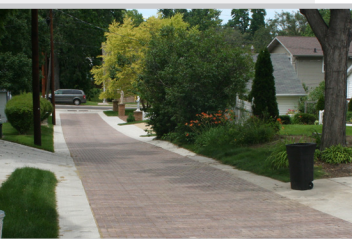


Bee Branch Railroad Culverts - Planned for 2019

The Bee Branch Creek Railroad Crossing which involves the placement of six 8-foot diameter pipes under the Canadian Pacific railroad yard is scheduled for 2019. The pipes will allow stormwater to drain more efficiently from the Upper Bee Branch Creek to the existing Lower Bee Branch Creek and 16th Street Detention Basin.

Impervious Surface Reduction (Green Alleys) - Under Construction

Green alley reconstruction focuses on reducing the volume of stormwater in the watershed. Green alleys feature permeable pavement which allows water to pass through the surface and filter gradually into the soil below. Over the course of the project, approximately 240 alleys in the watershed will be converted into green alleys. Seventy-three alleys were completed between 2014 and 2017. The remaining alleys are scheduled to be reconstructed between 2024 and 2038. This conversion is expected to reduce stormwater runoff within the Bee Branch Watershed by up to 80 percent.



Storm Sewer Improvements - Planned for 2017 - 2025

To help prevent the effects of flash flooding as witnessed in the past, storm sewer capacity improvements will be made at several locations within the watershed. To safely convey stormwater from the W. Locust Sub-Watershed to the restored Lower Bee Branch Creek, a new storm sewer will be installed along 17th St. from Elm St. to W. Locust St. continuing up W. Locust St. toward Angella Street. To convey stormwater from Kaufmann Ave. to the restored Upper Bee Branch, a new storm sewer will be installed along 22nd St. from Elm St. west across Central Ave. continuing up Kaufmann Ave. to Kane Street. The 17th St./W. Locust St. and 22nd St./Kaufmann Ave. projects are both scheduled to be finished in 2021. Lastly, the north end storm sewers between White St. and Elm St. from 25th St. to 30th St. will be expanded up to ten times their current capacity. This project is planned for 2025.



Bee Branch Healthy Homes Resiliency Program - Planned for 2016 - 2021

In 2016, the U.S. Department of Housing and Urban Development (HUD) awarded the City of Dubuque \$8.4 million in Disaster Resiliency Funds to assist Bee Branch Watershed homeowners in repairing and flood-proofing their homes. The grant funds will help with home maintenance and renovations to decrease environmental health and safety issues from flooding such as dampness and mold growth, electrical hazards, and structural issues. The program includes the rehabilitation of housing units, including owner-occupied homes, single-unit rentals, and small, multi-family residential units.



Cost and Funding

The Bee Branch Watershed Flood Mitigation Project is fully funded from multiple sources including financial assistance from the State of Iowa and Federal government, private donations, debt, and funds allocated from the local Stormwater Utility.

The City of Dubuque has received \$160 million in grants to help fund the \$219 million project. Most recently, the U.S. Department of Housing and Urban Development (HUD) awarded the City of Dubuque \$23.1 million in Disaster Resiliency Funds for stormwater infrastructure improvements including the West Locust Street and Kaufmann Avenue storm sewer projects and \$9 million for the Bee Branch Creek Railroad Culverts.

The City is participating in multiple state funding programs. Through the State Revolving Fund (SRF) program, the Iowa Environmental Commission authorized the City to reallocate \$9.4 million that was to be paid in interest on the loan associated with the Water and Resource Recovery Center upgrade project to instead be used to construct more than 70 green alleys in the Bee Branch Watershed. Also through SRF, the Iowa Finance Authority authorized the City to reallocate \$1.4 million that was to be paid in interest on the loan associated with the Upper Bee Branch Creek Restoration to make improvements in the Catfish Creek Watershed to protect the water quality of the Catfish Creek and prevent soil erosion.

In December 2013, the project was awarded \$98.5 million from the Iowa Flood Mitigation Board in the form of state sales tax increment financing* spread over 20 years. This is the largest amount ever awarded to the City of Dubuque and will enable the City to issue debt to implement the comprehensive flood mitigation plan much sooner than previously anticipated at a lower cost to Dubuque citizens and businesses. Additional grant funding is being explored.

Iowa Flood Mitigation Program

Authorized under the Flood Mitigation Bill in 2012, the Flood Mitigation Program is administered by the Iowa Department of Homeland Security on a competitive basis by a citizen board. In December 2013, the project was awarded

\$98.5 Million

in the form of state sales tax increment financing spread over 20 years.

What is sales tax increment financing?

Each year the total amount of state sales tax charged on goods and services purchased in Dubuque is projected to increase. This increase is called the "sales tax increment". From 2013 to 2033, up to 70 percent of this sales tax increment will be distributed to the City of Dubuque to help fund the Bee Branch Watershed Flood Mitigation Project. This means a percentage of Dubuque's retail sales tax is being invested back in our community to make local infrastructure improvements and enhance quality of life within the watershed.

Project Timeline



Infrastructure Improvement	Status	Cost
Carter Road Detention Basin	Completed in 2003	\$1,076,315
West 32nd Street Detention Basin	Completed in 2009	\$4,158,589
Lower Bee Branch Creek Restoration	Completed in 2011	\$21,274,685
Historic Millwork District Complete Streets	Completed in 2012	\$7,977,311
Upper Bee Branch Creek Restoration	Completed in 2017	\$60,203,636
Bee Branch Railroad Culverts	Est. Completion - 2019	\$18,249,000
Flood Mitigation Gate Replacement	Est. Completion - 2020	\$2,099,000
22nd St./Kaufmann Ave. Storm Sewer Improvements	Est. Completion - 2021	\$15,406,000
17th St./W. Locust St. Storm Sewer Improvements	Est. Completion - 2021	\$11,281,000
Bee Branch Healthy Homes Resiliency Program (Assistance to over 300 homes in the Bee Branch Watershed)	Est. Completion - 2021	\$8,427,665
Flood Mitigation Maintenance Facility	Est. Completion - 2022	\$5,431,000
North End Storm Sewer Capacity Improvements	Est. Completion - 2025	\$1,341,000
Water Plant Flood Protection	Est. Completion - 2025	\$4,397,000
Impervious Surface Reduction (240 Green Alleys)	Est. Completion - 2038	\$57,420,000
Total cost, excluding interest on debt:		\$218,742,201
Total grants to date:		\$160,200,000

Stormwater Utility Fee

How will the Bee Branch Watershed Project impact stormwater utility fees?

Dubuque's stormwater utility fee for fiscal year 2016 is \$6.38 per month for the average single-family home in Dubuque. (Properties that are exempt from property taxes, such as non-profits, only pay 50% of the stormwater fee, as do low-income individuals.) Due to the costs associated with maintaining the current stormwater management system and implementing the Bee Branch Watershed Project, the City is projecting annual increases to the stormwater utility rate to reach \$9.00 per month on July 1, 2021. Prior to the state grant program, the rate was projected to rise to \$9.00 per month on July 1, 2016, and the improvements would have taken 50 years or more. With the state grant, they will be completed in 25 years with most completed over the next seven years. The protection will be provided sooner at a lower cost to Dubuque residents and businesses.

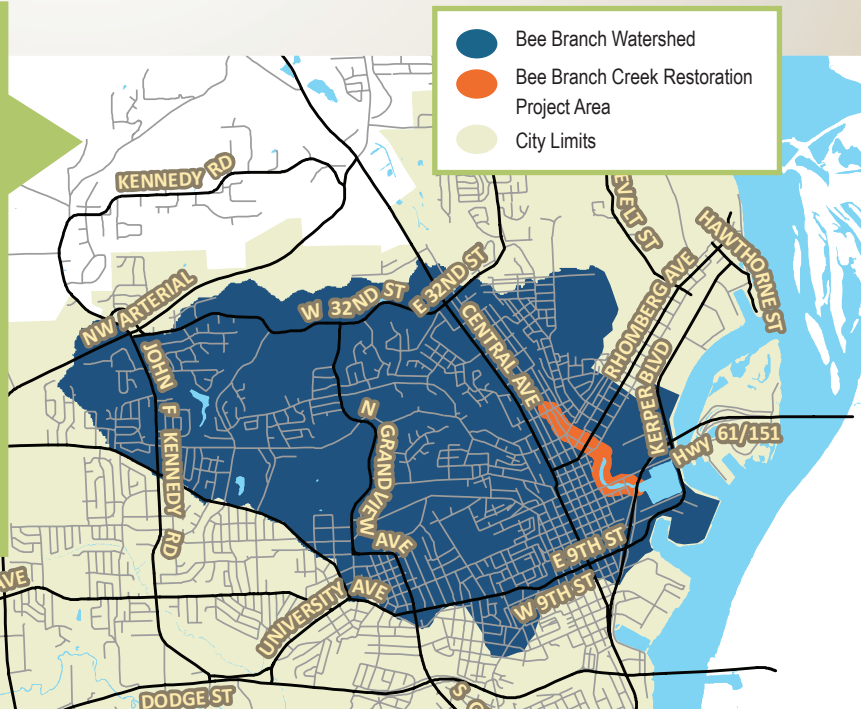
Stormwater Utility Fee Schedule:

FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
\$6.38	\$6.81	\$7.27	\$7.76	\$8.29	\$9.00

WHAT IS A WATERSHED?

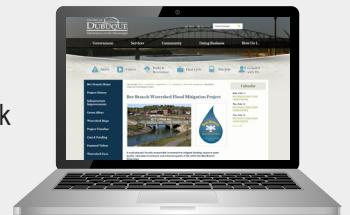


A watershed is an area of land that drains to the same place. The Bee Branch Watershed drains to the Bee Branch Creek. The Bee Branch Watershed is located entirely within the city limits of Dubuque and covers approximately 6.5 square miles of Dubuque's total area of 29 square miles. This watershed area includes the city's most developed areas, *where over 50% of Dubuque residents either live or work.*



Bee Branch Project Updates

To receive Bee Branch Project-related updates and alerts via email and/or text, subscribe to the Bee Branch Notify Me at www.cityofdubuque.org/notifyme. We also invite you to like the Bee Branch Project on Facebook at www.facebook.com/beebranchdbq and/or follow it on Twitter at www.twitter.com/beebranchdbq. For general questions or comments, email beebranch@cityofdubuque.org or call (563) 690-6068.



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This project supports the Sustainable Dubuque principles of:

BB003-020618



Healthy
Local Foods



Community
Knowledge



Community
Health & Safety



Reasonable
Mobility



Clean Water



Native Plants
& Animals



Regional
Economy



Community
Design