Waverly Flood Mitigation Improvements

(Over 450 homes and businesses permanently removed from the 100-year FEMA floodplain.)

Past
2010 Flood Map

100-year floodplain mapping before the Cedar River and Dry Run Creek flood mitigation improvements.

Present
2013 Flood Map

100-year floodplain mapping after the Cedar River Inflatable Dam project and before the Dry Run Creek flood mitigation improvements.

Proposed
2016 Flood Map

100-year floodplain mapping after the Cedar River Inflatable Dam project and after the Dry Run Creek flood mitigation improvements.
Cedar River Dam Improvements

For over 150 years, the Waverly Dam has been integral to the city. Over the years, the value of the Cedar River to industrial and economic development has led to extended development on the adjacent floodplain.


A flood protection study provided by Stanley Consultants in 2000 recommended an inflatable dam to protect the city from future flooding. Unfortunately, funding was not secured until the catastrophic 500-year flood of 2008 brought unimaginable destruction to the town of 10,000.

Waverly’s new inflatable dam is fully-automatic with a gated spillway that maintains a set water level elevation and automatically adjusts to flow rates. Hinged crest gates that control discharge and pool level run the length of the former uncontrolled spillway.

The project incorporates a novel approach to managing development in floodplains. Rather than alter the floodplain to contain the river, the river was altered to fit the floodplain. The project lowered the flood profile of the river, thus reducing the extent of the floodplain and removing the floodplain from properties (rather than vice versa).

With the new dam, Waverly is now successfully protecting 450 homes and businesses from a 100-year flood, preserving hydroelectric generation at the oldest operating facility in Iowa, and enhancing recreational opportunities by maintaining the upstream pool elevation.
Waverly’s Inflatable Dam

Normal Operations

May 22, 2013 Flood

- Waverly’s new dam was totally deflated.
- 9th largest recorded flood in past century.
- Waverly incurred only minor damages.
- Bremer County was the only county along the Cedar River that did NOT warrant a Governor’s Disaster Declaration!
Dry Run Creek Improvements

Present
2013 Flood Map

Proposed
2016 Flood Map

100-year floodplain mapping after the Cedar River Inflatable Dam project and before the Dry Run Creek flood mitigation improvements.

100-year floodplain mapping after the Cedar River Inflatable Dam project and after the Dry Run Creek flood mitigation improvements.
Existing Dry Run Creek Channel

In the early years development was allowed to encroach upon the Dry Run Creek channel.

Rapid snow melt and moderate rains can quickly fill the banks of the Dry Run Creek.
DRY RUN CREEK IMPROVEMENTS - SECTION CONCEPTS

**EARTHEN SECTION - TYPICAL**
- approximate existing grade
- 3' clear zone
- 10' wide trail
- screen plantings (if appropriate)
- grass side slope
- concrete channel bottom

**HYBRID SECTION - TYPICAL**
- approximate existing grade
- 3' clear zone
- 10' wide trail
- screen plantings (if appropriate)
- grass side slope
- vertical concrete wall - approx. 30'' height
- concrete channel bottom

**WALL SECTION - TYPICAL**
- railing - 3' height
- approximate existing grade
- screen plantings (if appropriate)
- grass side slope
- vertical concrete wall - approx. 6' height
- concrete channel bottom

POTENTIAL TRAIL AMENITIES

- Interpretive signs
- Trailheads/bike parking
- Rest stops/waysides
- Trail directional signs
Flood Insurance Avoidance

The estimated value of property in the SFHA is:
450 homes and business x $125,000 each = $56 million

Negative Impact from the Biggert-Waters Flood Insurance Reform Act of 2012:
450 properties at $5,650 annually = $2.5 Million Annually
Insurance Impact on Local Economy x3 = $7.5 Million Annually

Project Costs & Financing

Waverly Inflatable Dam Improvements $ 4,223,898
Dry Run Creek Improvements $ 7,077,000
Total Costs $11,300,898

Federal $ 4,223,898
State $ 5,647,000
Local $ 1,430,000
Total Financing $11,300,898
City of Waverly
Iowa Flood Mitigation Program

Annual Sales Tax Increment Forecast & Projected Annual Bond Payments

Sale Tax Increment Financing
$4.25 Million Principle
$1.40 Million Interest
$5.65 Million Total

100% Sale Tax Growth
70% Cap
Bond Payments

FY 12-13
FY 13-14
FY 14-15
FY 15-16
FY 16-17
FY 17-18
FY 18-19
FY 19-20
FY 20-21
FY 21-22
FY 22-23
FY 23-24
FY 24-25
FY 25-26
FY 26-27
FY 27-28
FY 28-29
FY 29-30
Waverly Flood Mitigation Improvements Schedule

Flood Mitigation Studies and Planning - DONE

Phase 1 - Waverly Inflatable Dam Improvements – DONE

Phase 2 - Dry Run Creek Improvements
- 2014 Final Design & Property Acquisition
- 2015-16 Construction
- 2017 Finalize FEMA Map Revisions