Eight Years In the Making: Flood Recovery and Protection in Coralville, IA 2008-2016

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2008 Flood
- Preceding winter 2007-2008 was eighth wettest on record
- April 2008 was second wettest on record
- Iowa had record-setting 15-day wet period during the first half of June 2008
Iowa River overtops CRANDIC embankment
June 13th
2008 Flood

Iowa River remains above flood stage June 8 – July 7
2008 Flood

Top 10 Annual Flood Peaks for Iowa River at Iowa City

- Current Stage
- 1851-06-00
- 1973-05-01
- 1974-06-09
- 1975-04-09
- 1979-03-29
- 1982-06-15
- 1985-03-04
- 1991-06-13
- 1993-08-10
- 2008-06-15

0 4 8 12 16 20 24 28 32
2008 Flood

• Impacted
  ▫ 273 acres flooded
  ▫ 420 Households
  ▫ 200 Businesses

• Damages
  ▫ $21M commercial
  ▫ $4M residential
  ▫ $7M public infrastructure
Recovery and Mitigation Planning
Planning

- City immediately began both recovery work and planning for the future
  - Coordination with neighboring communities
  - Buyouts along Edgewater Drive
- September 2008 - two consultants under contract to complete flood mitigation studies
  - Flood protection along Iowa River / CRANDIC Railroad alignment
  - Storm sewer system, pump stations and remainder of flood protection
- November 2008 – flood mitigation studies completed
  - Vital information obtained to complete funding applications
Flood Mitigation Study Goals

- Evaluate existing storm water and flood protection system against the June 2008 flood plus one foot of freeboard
- Identify areas for improvement in the flood protection
- Identify and evaluate alternatives to withstand a similar flood
- Develop opinion of capital costs for the improvements
- Develop recommendations to prioritize the capital improvements
Mitigation Study
Recommendations
Recommendation Summary

- **Comprehensive flood protection**
  - Repair existing storm water pump stations
  - Install storm sewer backflow prevention
  - Mixture of berms, flood walls, and removable flood walls specific to each location and future development/redevelopment plans
  - Additional storm water pump stations to handle interior drainage

- **Build on the existing system**
  - Prevent backflow for entire storm sewer system
  - Raise protection level of existing pump stations and flood walls
  - Close gaps in protection

- **Protect critical infrastructure**
  - Transportation corridors
  - Sanitary lift stations
  - Electrical substations and switch gear
Flood Protection Regions

- Each region can be built independently and provide flood protection for that region alone
- Allows for smaller projects to be completed as funding becomes available
Restore and upgrade four existing Pump Stations
Add six new storm water Pump Stations
Flood Protection
Flood Protection

Legend

Pump Station
- □ Funded
- □ Unfunded

Storm Sewer
- --- Funded
- --- Unfunded

Backflow Prevention
- ▲ Duckbill
- □ Gate
- ○ Other
Funding

• Mitigation studies completed with City funds
• Several grant programs pursued for design/construction
  ▫ HMGP, CDBG, EDA, I-JOBS, HUD Disaster Resiliency
• Grants awarded
  ▫ I-JOBS $27.1 Million  Berms, walls, pump stations, 1st Avenue, Bridge
  ▫ EDA $  7.1 Million  Flood protection along CRANDIC
  ▫ CDBG $  3.1 Million  Flood protection along CRANDIC
  ▫ CDBG $  600,000  Storm sewer backflow prevention
  ▫ I-JOBS II $  3.6 Million  Clear Creek & Biscuit Creek flood protection
  ▫ CDBG $10.0 Million  Pump stations, 4th Avenue storm sewer
  ▫ HUD $  1.8 Million  Pump stations (2017-18 construction)

• Flood Mitigation Sales Tax Increment Funding
  ▫ 5th Street reconstruction over Biscuit Creek
  ▫ Flood protection south bank of Clear Creek (2016-17 construction)
Progress

- Restored existing pump stations to pre-flood operation Summer 2009
- Raised pump station electrical and controls above 2008 + 1ft
- Completed backflow prevention at all locations
Construction
Progress
Construction
Construction
Construction
Construction
Keys to Success

• Coordination and quick response within community
• Data collection during the flood (HWMs, etc.)
• Coordination with Iowa City and University of Iowa
  ▫ Updated Iowa River and Clear Creek HEC-RAS models
• Coordination with consultants during and after flood
• Aggressive pursuit of grant funding opportunities
• Commitment to an aggressive schedule

• Work Continues…
  • post-construction storm water ordinance
  • Clear Creek Watershed Coalition
But that will never happen again....
April 2013 Flooding – Clear Creek
June 2013 Flooding – Iowa River
July 2014 Flooding – Iowa River

Coralville Lake Reservoir
From 06/01/2014 To 07/31/2014

Record High: 717.02
Spillway Crest: 712
Normal Conservation Pool: 683

Stage in Feet

1 Jun 2014 7 10 13 16 19 22 25 28 1 Jul 2014 4 7 10 13 16 19 22 25 28 1 Aug 2014

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