

# A River Runs Through It

A Look at the Flood Protection System  
for Cedar Rapids, Iowa



Building Communities.  
Improving Lives.



**HANSON**

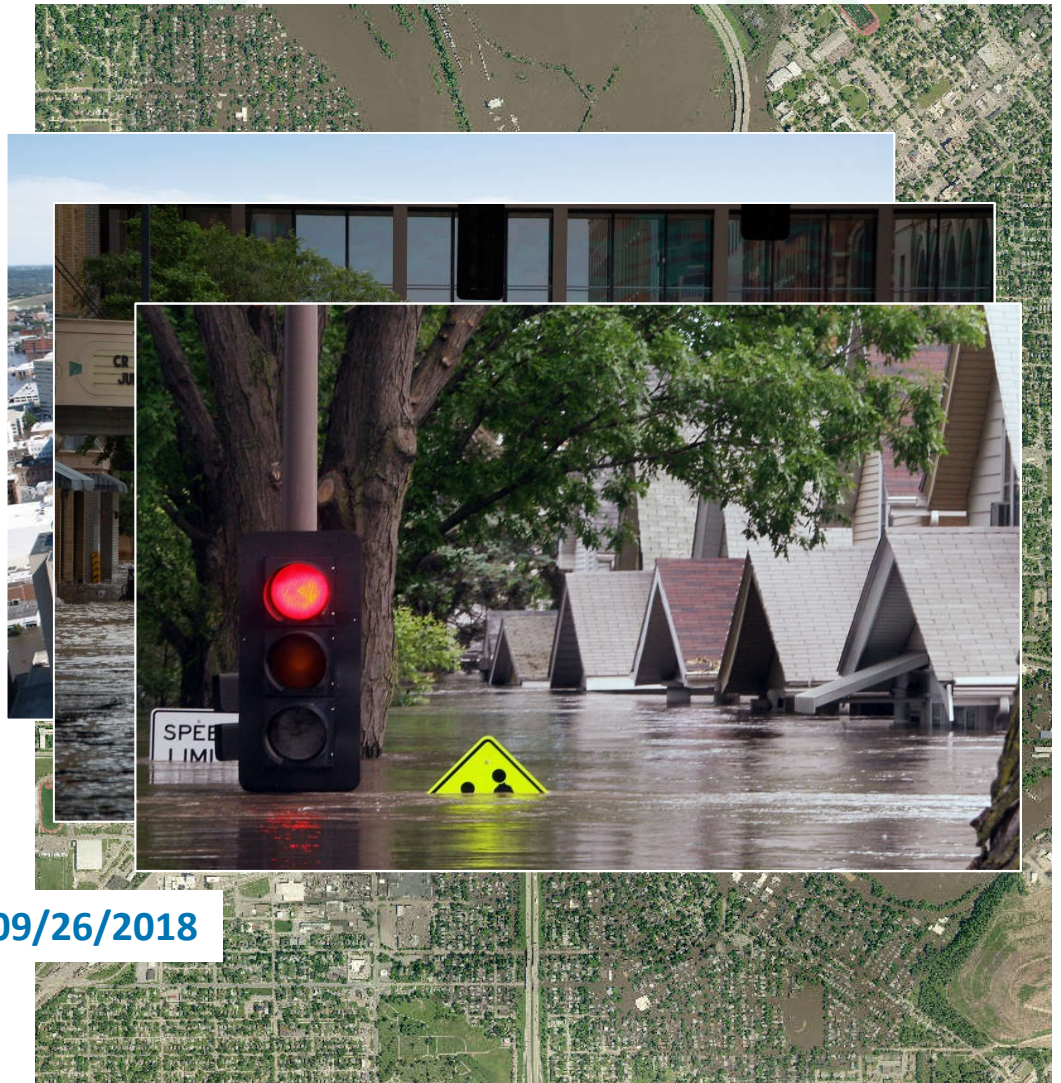
Engineering | Planning | Allied Services

# A History of Flooding

- Major floods in Cedar Rapids

1. 31.12 ft on 06/13/2008
2. 21.95 ft on 09/27/2016
3. 20.00 ft on 06/01/1851
4. 20.00 ft on 03/18/1929
5. 19.66 ft on 03/31/1961
6. 19.27 ft on 04/04/1993
7. 18.60 ft on 04/04/1933
8. 18.51 ft on 04/10/1965
9. 18.31 ft on 07/25/1999
10. 18.30 ft on 05/27/2004
11. 18.23 ft on 06/02/2013
12. 18.23 ft on 06/16/1947
13. 18.05 ft on 07/12/1993
14. 17.85 ft on 07/18/1993
15. 17.60 ft on 03/30/1906

← 17.94 on 09/26/2018



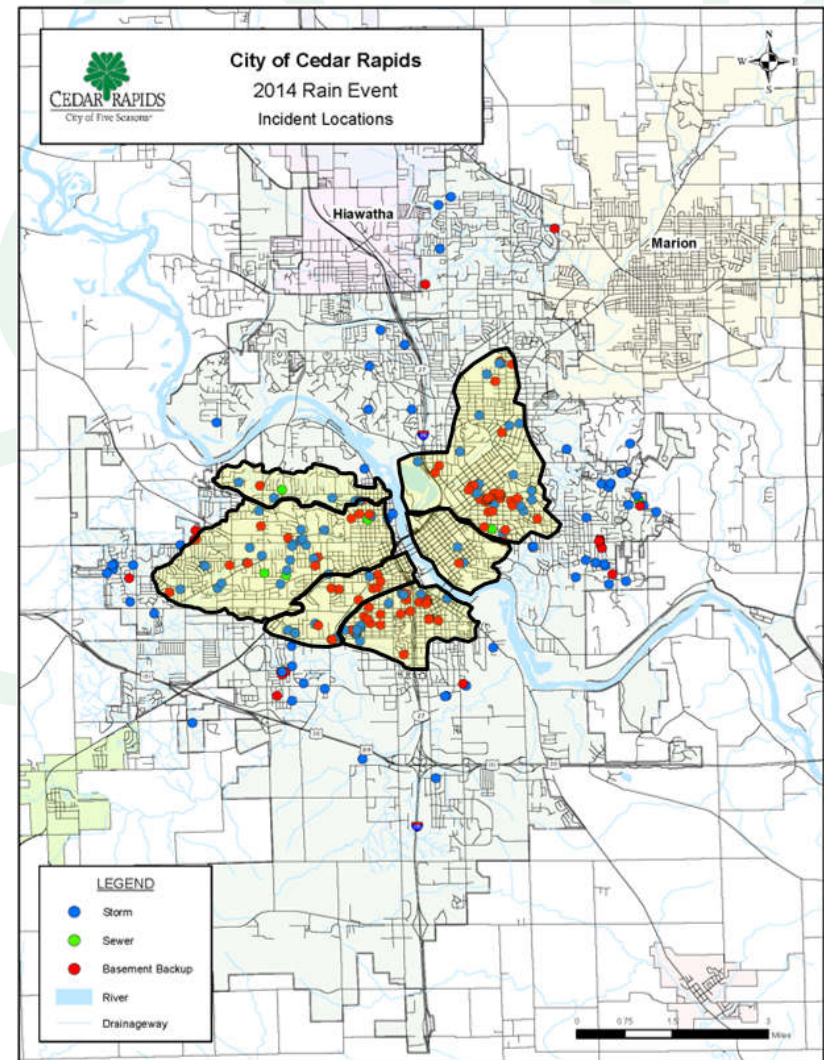
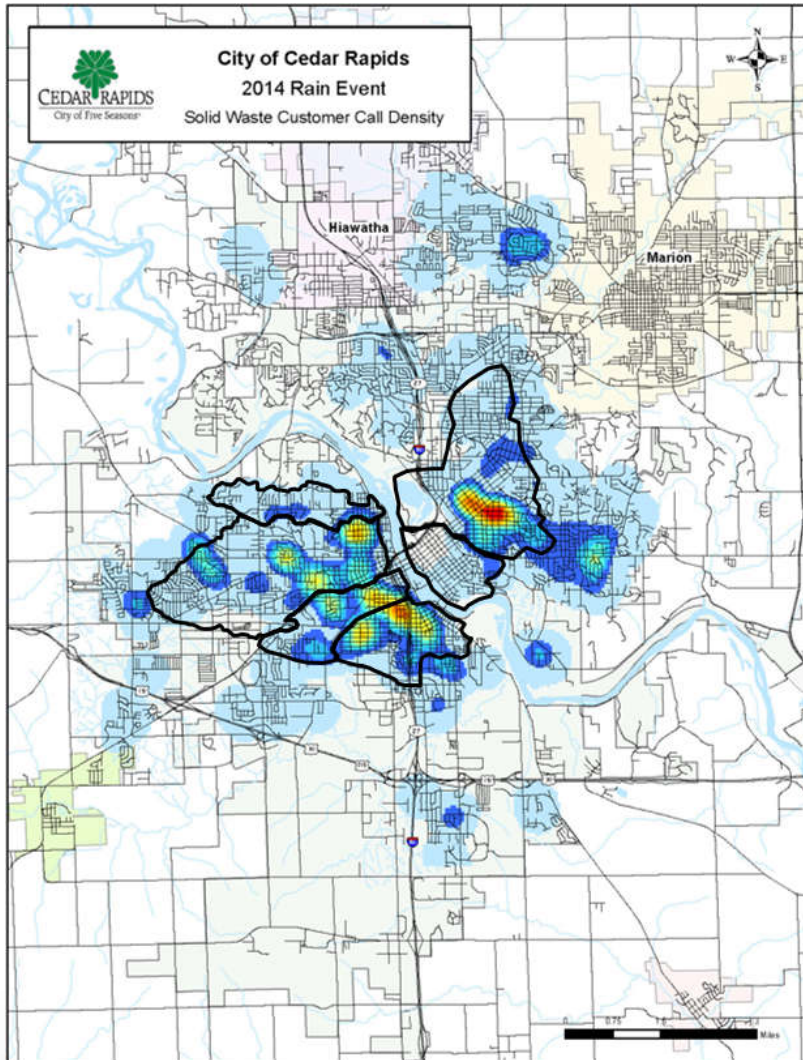


# 2016 Flood

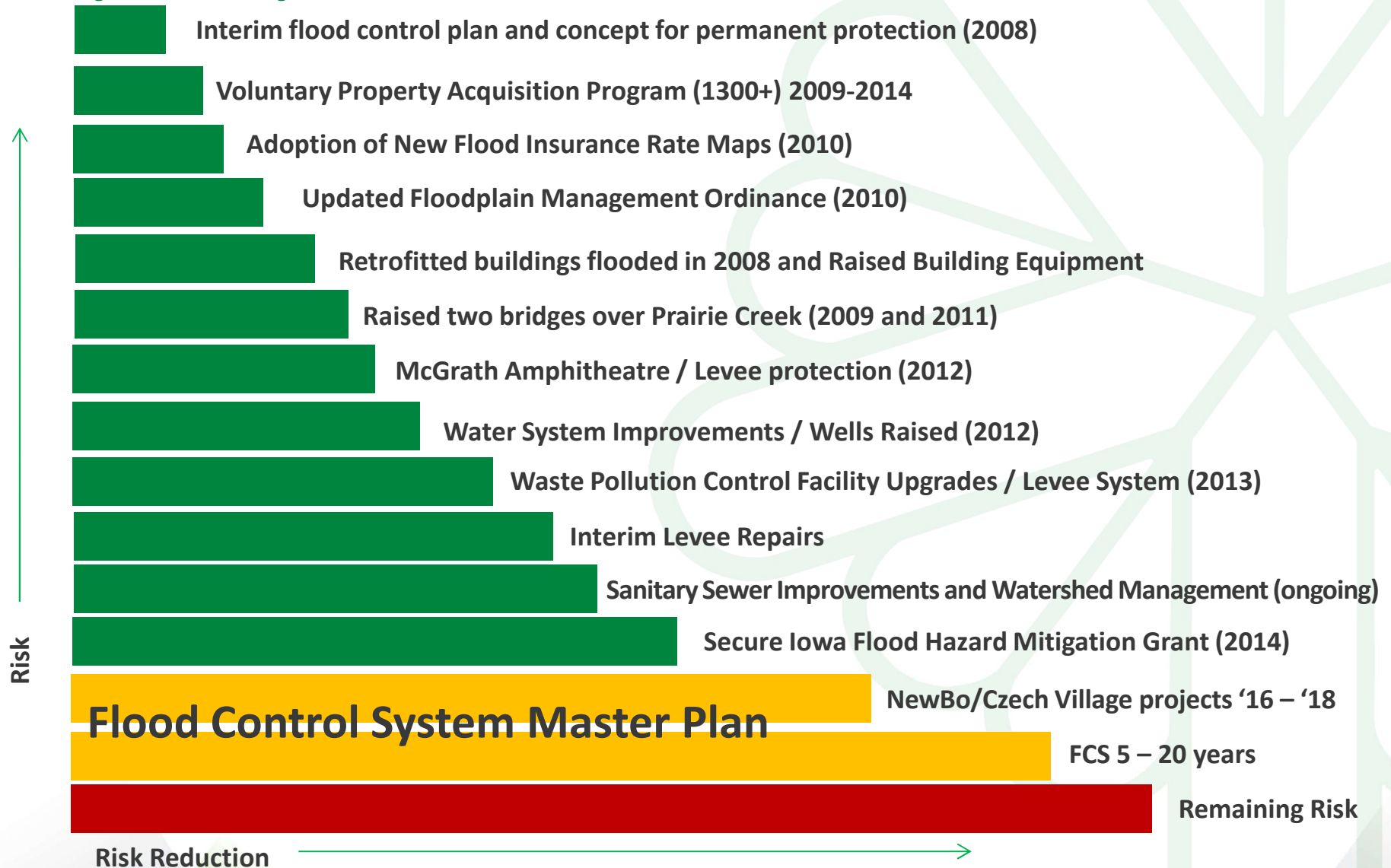




# Flash Flooding



# City Response





## Neighborhood Workshops, Open Houses, City Events, Website



The flood control logo



Megan Murphy, communications coordinator for the city's Utilities Department, said the C Street SW water tower will be painted a light blue and

[www.thegazette.com](http://www.thegazette.com)

This image is among the options displayed on the city of Cedar Rapids' website on flood-control options. The example shows how one levee's slope can be varied.

Sandy Pumphrey, the city's project engineer for flood control, on Monday said the city is getting a lot of quality comments from the public as it decides a final alignment for the system. It then has to decide what part of that alignment will be earthen levee, solid flood wall, removable flood wall or combination wall that is partially removable.

Jim Halverson, vice president of HR Green Co. of

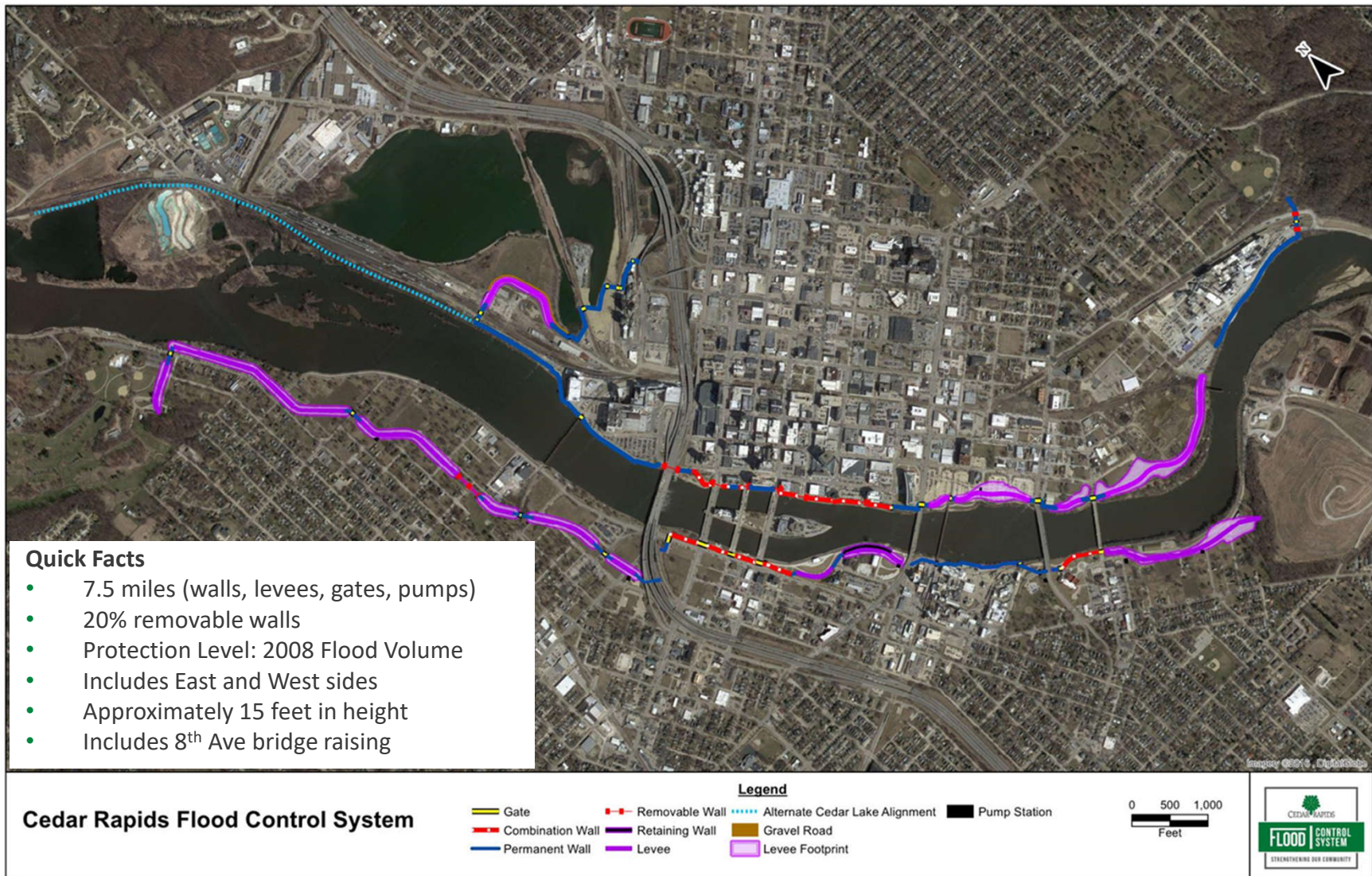


► **FLOOD CONTROL, PAGE 11**

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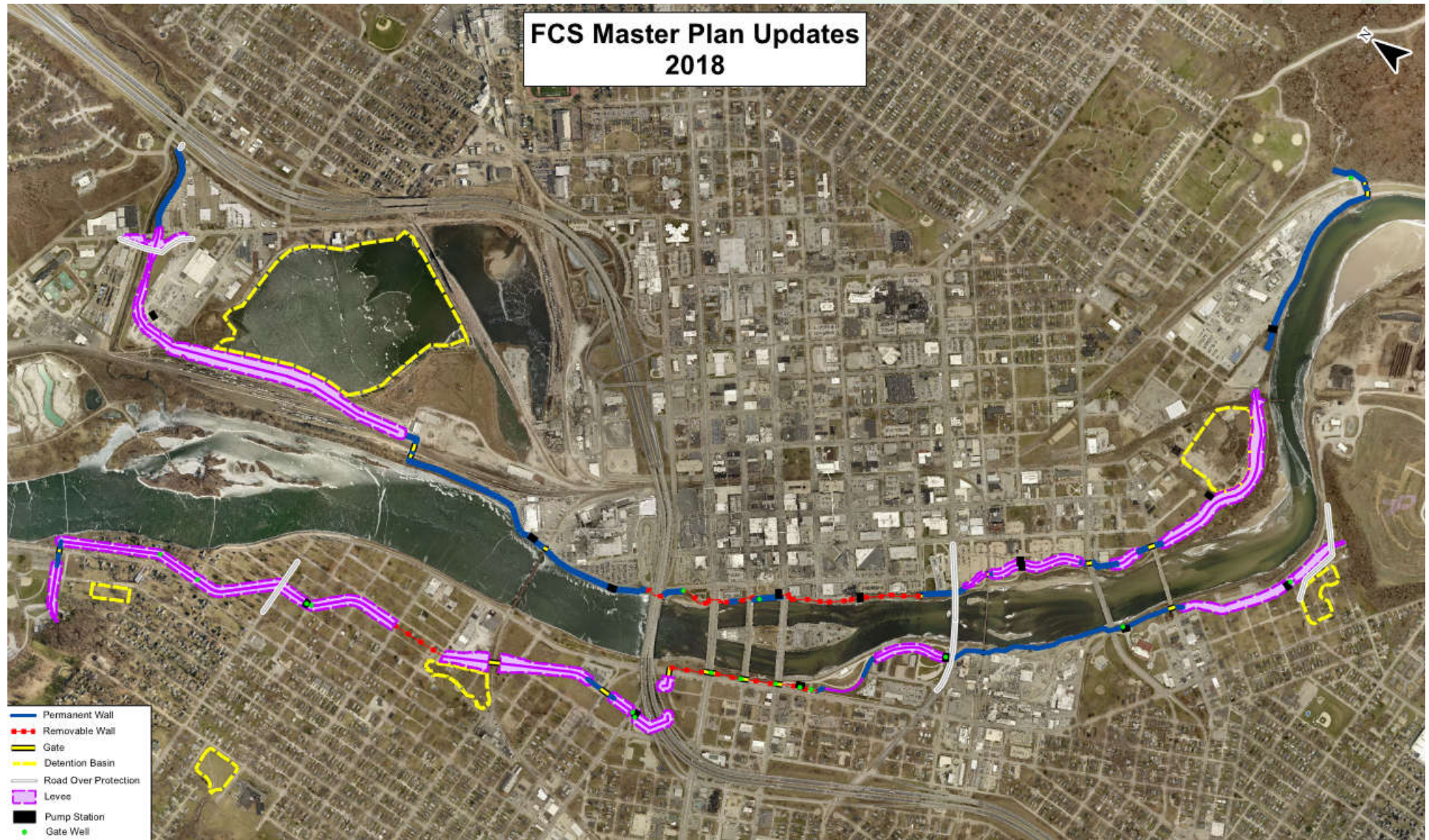


# Overall System



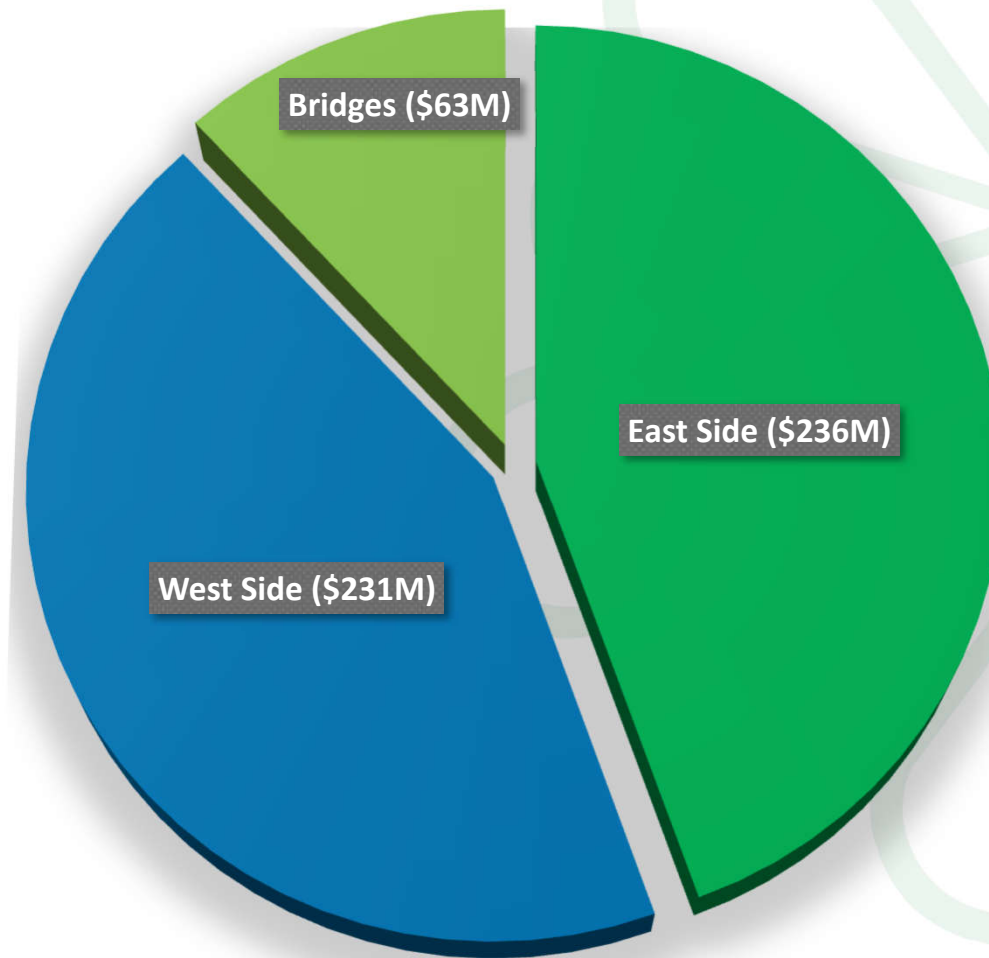


# Master Plan Updates





# Budget Overview





# Funding

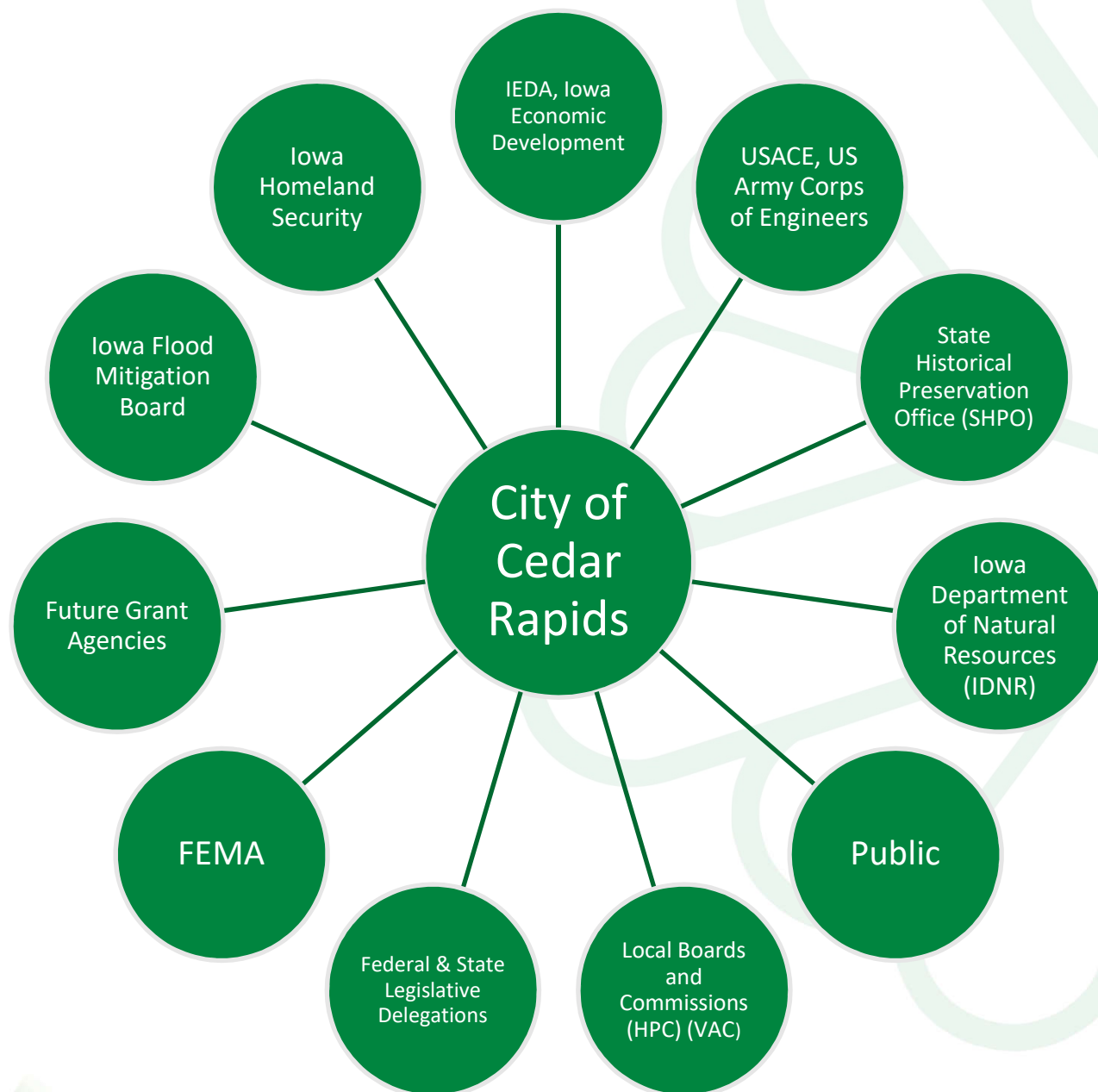
- No authority or multi-jurisdictional entity to fund, design, construct, or manage the system
- Estimated cost = \$550 million
- 3.5% inflationary factor applied to design and construction
- Over 30 funding options investigated and vetted



# Funding

- Major funding sources include
  - Flood Mitigation Grant: \$267 million
    - Iowa legislature authorized a program for communities to capture up to \$15 million for each of 20 years for flood control
  - USACE funding: \$117 million
  - Debt Service levy increase: \$200 million
    - \$0.20/year for each of 10 years will generate \$200 million
- Efforts underway to offset project costs through
  - Value Engineering
  - Competitive Grants (\$15 million secured to date)

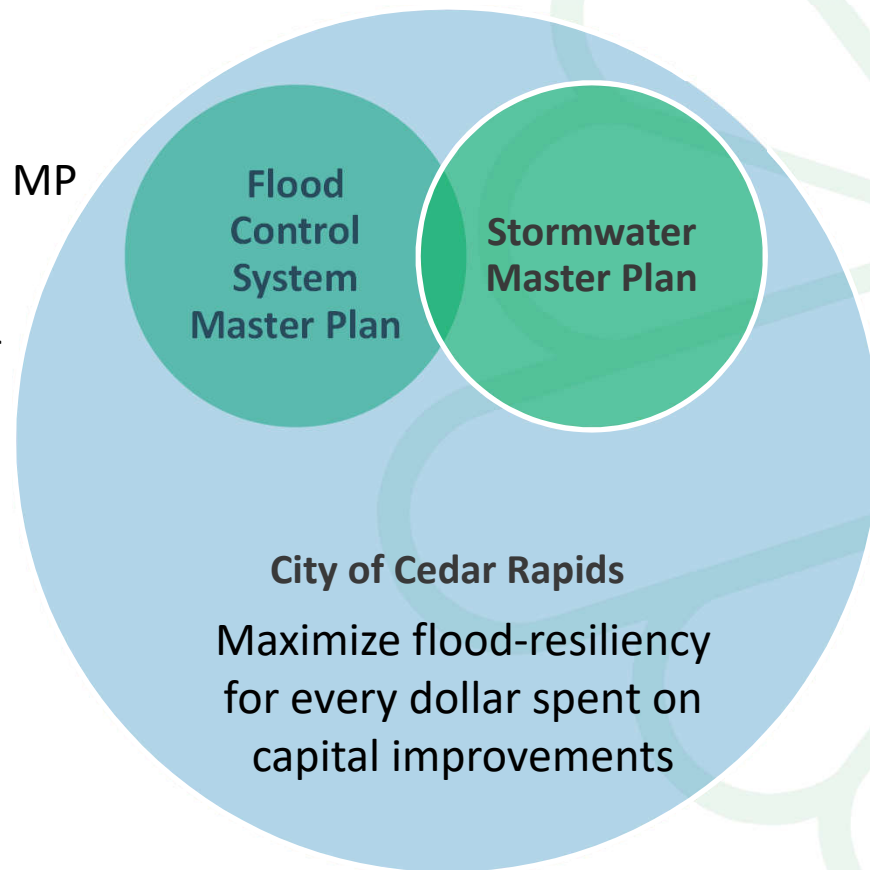




# Partnering and Collaboration

- **Flood Control System MP**

- Decrease 5-year peak flow rate = smaller stormwater pump station
- Reduce pump station capital costs

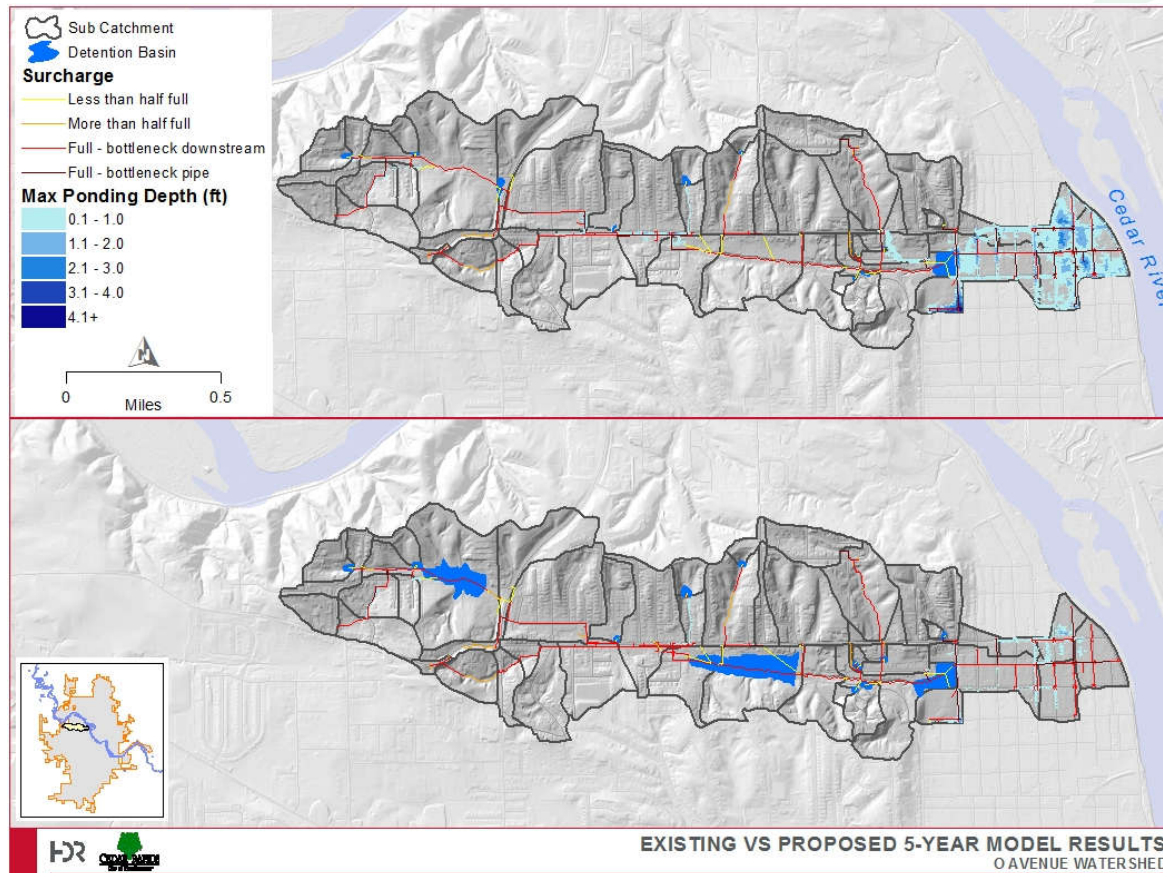


- **Stormwater MP**

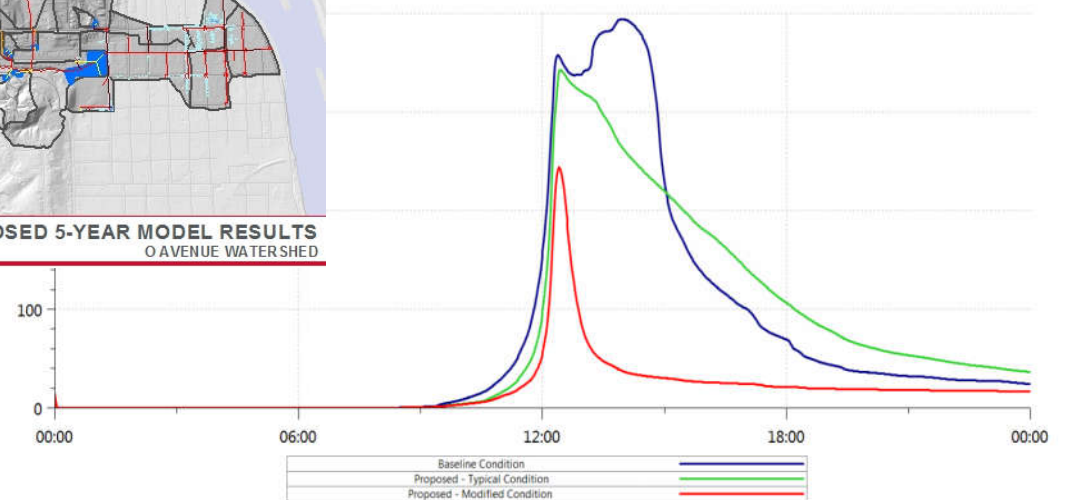
- Reduce flood risk throughout the watershed
- Utilize existing floodplain conveyance system
- Increase value and utility of upstream capital investments



# Partnering and Collaboration



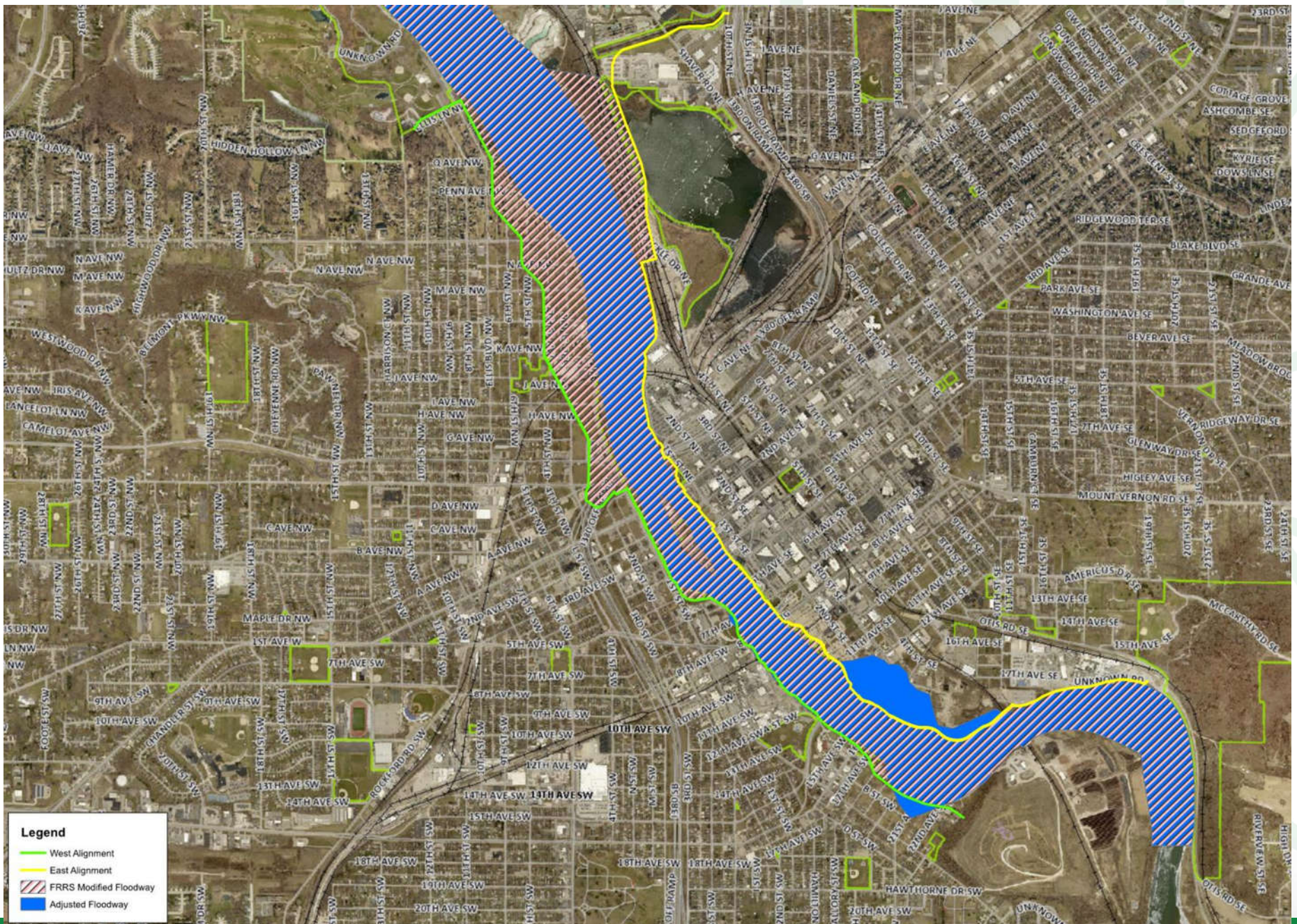
Cedar River Outfall Hydrograph



## Discharge Comparison for Cedar River at the Cedar Rapids Gage

Exceedance Probability	Discharges (cfs)		
	FIS Report	Feasibility Study (Approved by IDNR 11/30/08)	
<b>10% (10-year)</b>	53,000	54,500	
<b>1% (100-year)</b>	87,000	94,100	
<b>0.5% (200-year)</b>	N/A	106,000	
<b>0.2% (500-year Design Flow)</b>	112,000	122,000	





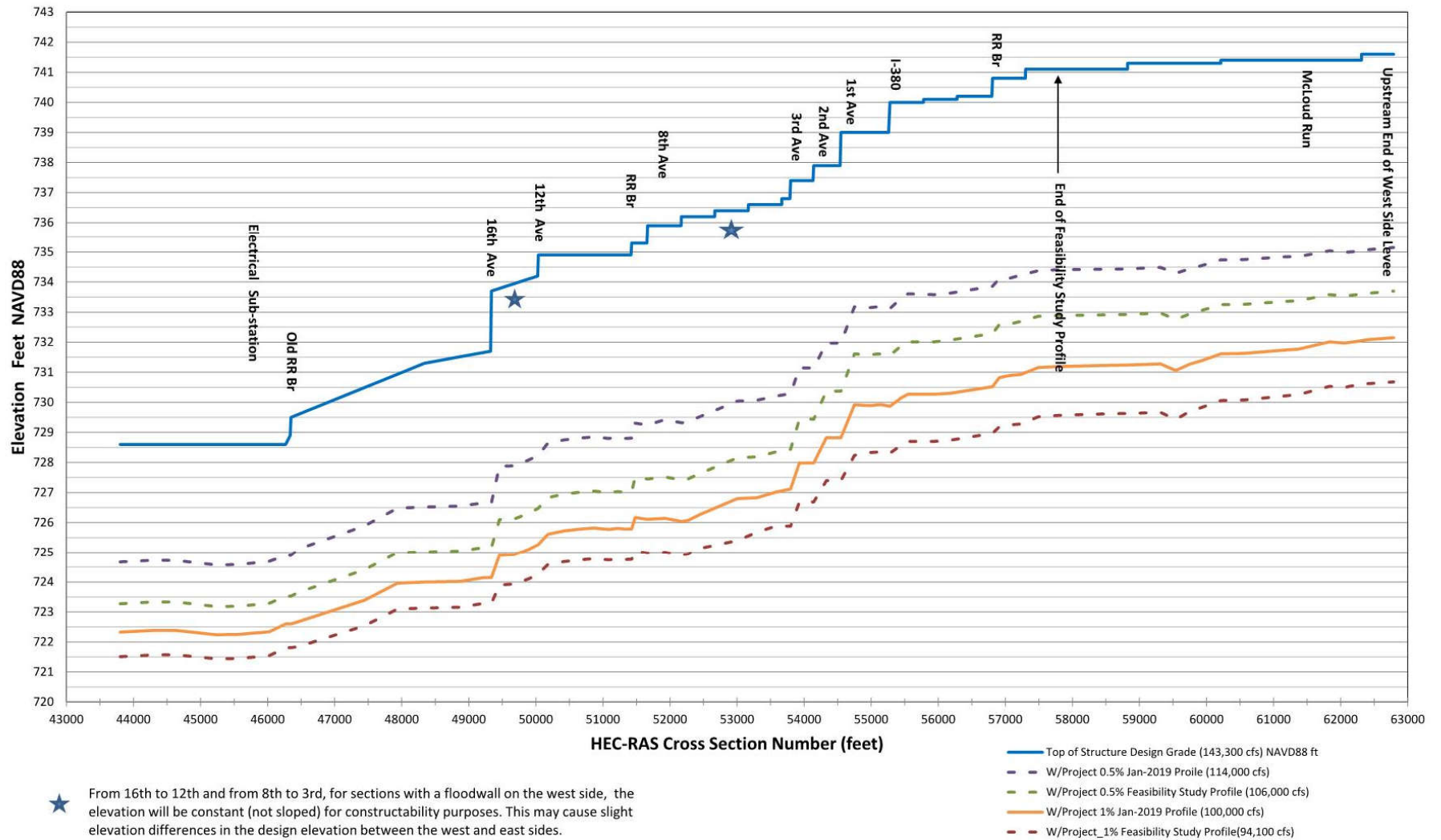


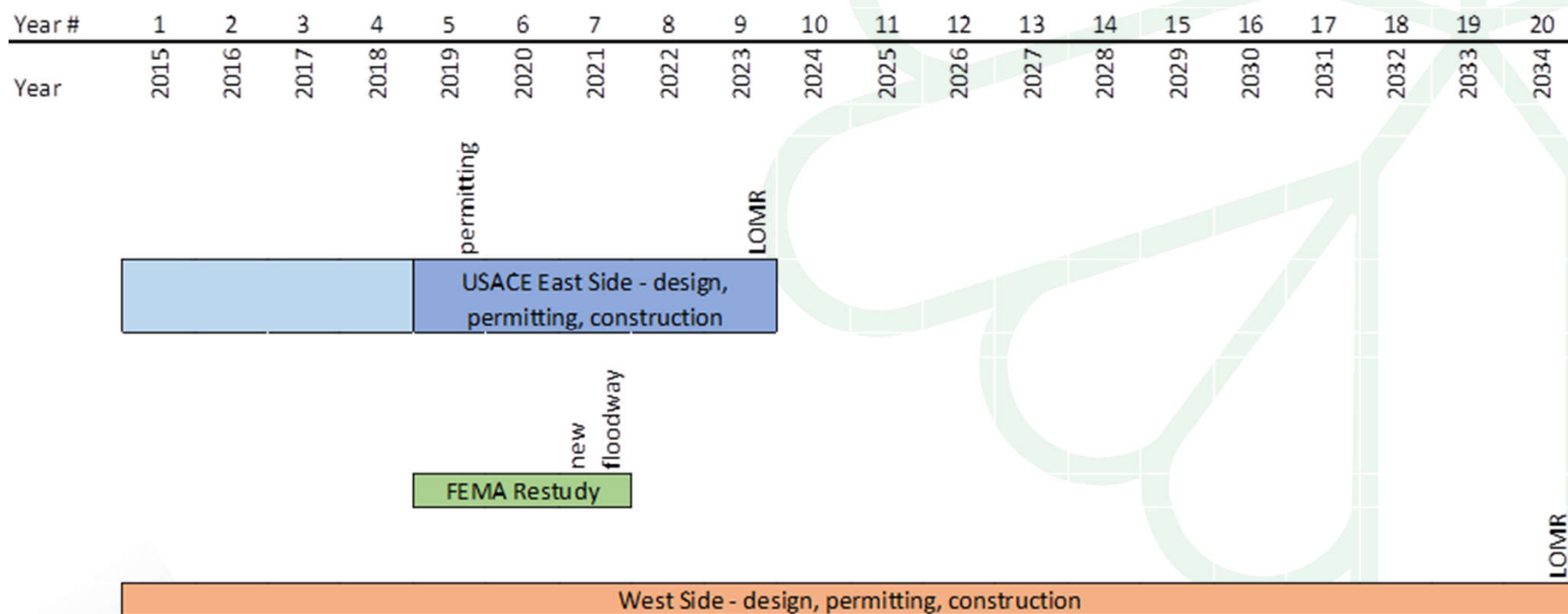
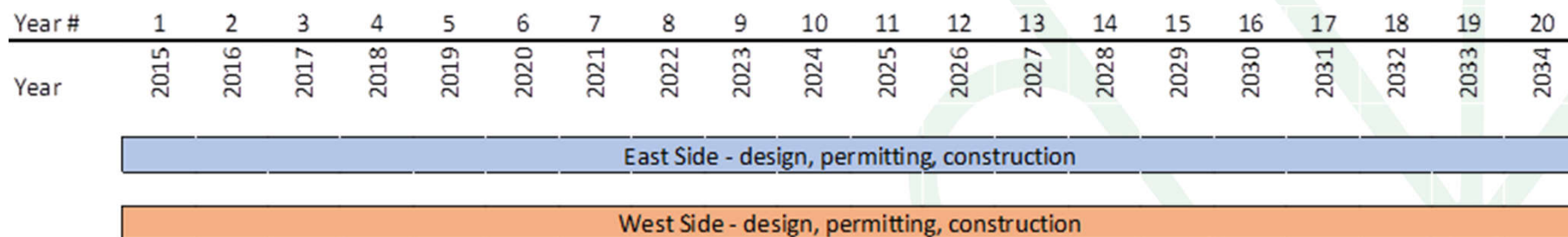
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	FIS Report	Feasibility Study (Approved by IDNR 11/30/08)	FEMA Remapping (March 2019)
<b>10% (10-year)</b>	53,000	54,500	
<b>1% (100-year)</b>	87,000	94,100	100,000
<b>0.5% (200-year)</b>	N/A	106,000	114,000
<b>0.2% (500-year Design Flow)</b>	112,000	122,000	



## Cedar Rapids Project Alt 1A Design Elevation - (25 February 2019)







# Lessons Learned

- Coordinate Early, Coordinate Often
  - Workflow and schedules
  - Technical aspects (models, methods, criteria...)
- Identify and support multi-benefit projects
  - Prioritize
  - Partnering/Collaboration
  - Transparency
  - Flexibility
- Focus on the shared goal:  
**A flood-resilient Cedar Rapids**



