



City of Cedar Rapids
**Joint Flood Control System Committee and
Finance & Administrative Services Committee**
City Hall – Council Chambers
Monday, May 2, 2016
4:00pm – 5:00 p.m.

Purpose of Flood Control System Committee:

To enable the City Council to discuss and evaluate in greater detail these specific issues that directly impacts the flood control system for the City of Cedar Rapids.

City Council Committee Members:

Council member, Ralph Russell
Council member, Justin Shields
Council member, Kris Gulick

- Mayor Ron Corbett is an ex-officio member of all Council Committees per City Charter Section 2.06.

Purpose of Finance & Administrative Services Committee:

To enable the City Council to discuss and evaluate in greater detail these specific issues that directly impact the financial and organizational strength of the City of Cedar Rapids.

City Council Committee Members:

Council member Kris Gulick, Chair
Council member Justin Shields
Council member Susie Weinacht

- Mayor Ron Corbett is an ex-officio member of all Council Committees per City Charter Section 2.06.

Agenda:

- Informational Items:

- | | |
|---|---------------------------------------|
| 1. Financial Report update (5 mins) | Rob Davis
<i>Public Works</i> |
| 2. Grant Submission Log update (5 mins) | Rob Davis
<i>Public Works</i> |
| 3. 2016 Design/Bid Activities (5 mins) | Bill Bogert
<i>Anderson Bogert</i> |

Any discussion, feedback, or recommendation by Committee member(s) should not be construed or understood to be an action or decision by or for the Cedar Rapids City Council. Further, any recommendation(s) the Committee may make to the City Council is based on information possessed by the Committee at that point in time.

Anyone who requires an auxiliary aid or service for effective communication, or a modification of policies or procedures to participate in a City program, service, or activity, should contact the City Manager's Office at (319) 286-5080 or email a.wing@cedar-rapids.org as soon as possible but no later than 48 hours before the event.



- Presentation:

1. Czech Village FCS Re-alignment (15 mins)

Rob Davis
Public Works

2. FCS Project Plan and Schedule (15 mins)

Rob Davis
Public Works

- Recommendation Items:

1. Interior Drainage Pump Station Sizing Policy (15 mins)

Teresa Stadelmann
HR Green

- Public Comment

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Growth Reinvestment Initiative (GRI)

Below is a summary of projected vs actual GRI revenue received thru March 2016.

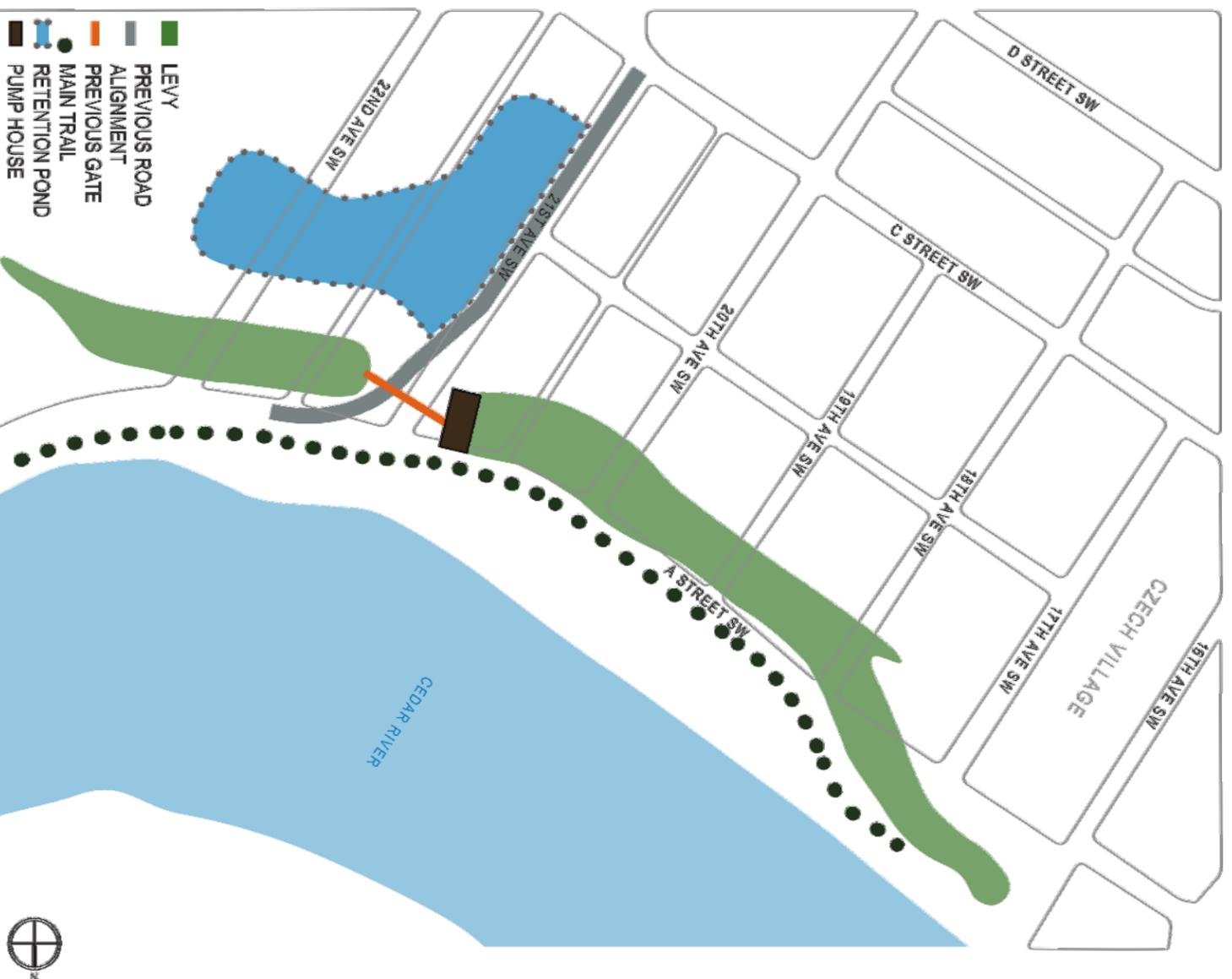
Increment from	Estimated Payments from State	Actual Payments Received from State					Total
		1st Qtr	2nd Qtr	3rd Qtr	4th Qtr		
2014	\$ 2,499,988	N/A	N/A	\$ 1,556,798	\$ 1,021,129	\$ 2,577,927	
2015	\$ 10,700,000	\$ 1,662,283	\$ 3,041,641	\$ 2,481,328	\$ 959,639	\$ 8,144,890	
2016	\$ 7,689,027	\$ 1,752,565				\$ 1,752,565	
2017	\$ 10,381,241					\$ -	
2018	\$ 13,140,760					\$ -	
2019 - 2033 per year	\$ 15,000,000					\$ -	
						\$ -	
	\$ 269,411,016					\$ 12,475,382	

Thru March 2016, \$13M of the growth reinvestment funds are spent. Some of the larger March expenses include design/engineering, demolition services in the Sinclair Levee area, tree/vegetation removal along the A Street levee, and lot 44 repayment.

Project	Total	Project	Total
331001 Cedar River Flood Protection	47,992	3314300 GRI-R1-MGMT-Quaker Cedar Lake	60,871
331002 Amphitheater Demount Floodwall	255,557	3314400 GRI-R1-ENGR-Quaker Cedar Lake	1,828,796
331003 Time Check Area Prop Acq	5,232	3314500 GRI-R1-CONST-Quaker Cedar Lake	1,180,100
331005 Czech Village Area Prop Acq	5,906	3315200 GRI-R2-ACQ-Downtown	204
3311100 GRI-TC-EHP-Time Check	109,837	3315300 GRI-R2-MGMT-Downtown	26,352
3311200 GRI-TC-ACQ-Time Check	247,858	3315400 GRI-R2-ENGR-Downtown	715,817
3311201 GRI-TC-DEMO-Time Check	31,424	3316100 GRI-R3-EHP-NewBo Sinclair	83
3311300 GRI-TC-MGMT-Time Check	49,319	3316200 GRI-R3-ACQ-NewBo Sinclair	887,097
3311400 GRI-TC-ENGR-Time Check	633,320	3316300 GRI-R3-MGMT-NewBo Sinclair	35,271
3312100 GRI-KI-EHP-Kingston	109,649	3316309 FCS-R3-Sinclair Levee	651
3312200 GRI-KI-ACQ-Kingston	204	3316310 FCS-R3-10th Ave & Lot 44 PumpS	149
3312300 GRI-KI-MGMT-Kingston	22,570	3316400 GRI-R3-ENGR-NewBo Sinclair	892,579
3312400 GRI-KI-ENGR-Kingston	496,748	3316509 GRI-R3-Sinclair Levee	165,818
3313100 GRI-CV-EHP-Penford Czech Vil	109,932	3317200 GRI-R4-ACQ-Cargill South	204
3313200 GRI-CV-ACQ-Penford Czech Vil	310,470	3317300 GRI-R4-MGMT-Cargill South	20,693
3313201 GRI-CV-DEMO-Penford Czech Vil	338	3317400 GRI-R4-ENGR-Cargill South	556,000
3313300 GRI-CV-MGMT-Penford Czech Vil	42,780	331813-01 GRI-R1-Quaker Oats Perm Wall	3,147
3313400 GRI-CV-ENGR-Penford Czech Vil	643,564	SWB010 F-Sinclair 403-RACM Non-Hist	2,478,664
3313514 GRI-CV-N Levee along A St	45,117	SWB011 CS-Sinclair 403-RACM Historic	1,085,798
3314200 GRI-R1-ACQ-Quaker Cedar Lake	168,701		13,274,813

FCS GRANT SUBMISSION LOG

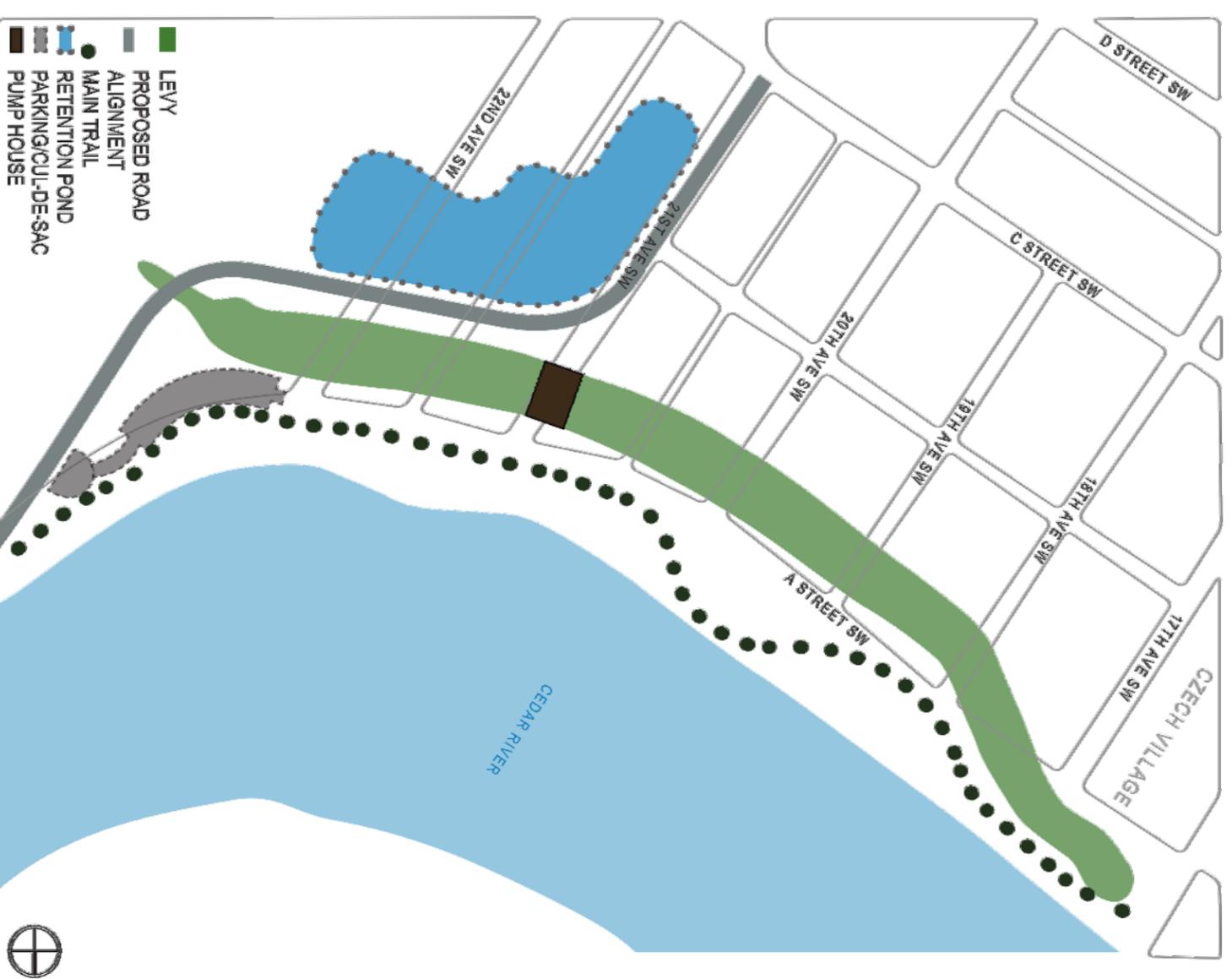
SUBMISSION DATE	AGENCY	GRANT	LOCATION	AMOUNT	RESULT
6/4/2015	Iowa Economic Development Authority	CDBG Amendment	North Industrial (Quaker)	\$911,562.00	Approved
6/30/2015	Iowa Homeland Security	GRI	System Wide	Gross-\$5,637,523 Net-\$3,082,413	Approved
9/16/2015	Federal Transit Administration (FTA)	Property Rights Donation/Grant Forgiveness	Lot 44 NewBo	\$170,616.60	Not Approved
9/29/2015	Iowa Department of Transportation	City Bridge Program	NewBo/Czech Village (8th Ave Bridge)	\$1,000,000.00	Pending
10/1/2015	Iowa Department of Transportation	Federal Recreation Trails Grant	NewBo/Sinclair	\$235,603.00	Not Approved
1/15/2016	Vision Iowa	Community Attraction & Tourism (CAT) Program	Tree of 5 Seasons Park and Trail	\$384,500	Not Approved



2016-2020 Czech Village Flood Control System

Issued February 26, 2016

Work underway in the Czech Village area is part of a multi-year effort to construct permanent flood control for the Cedar Rapids community. Improvements in this area include the construction of a permanent levee as well as creating a new roadway alignment for 21st Avenue. The entire system will stretch north to south on both sides of the Cedar River, and will include a combination of levees, floodwalls, and gates.



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Flood Control System History & Recap



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FLOOD | **CONTROL
SYSTEM**

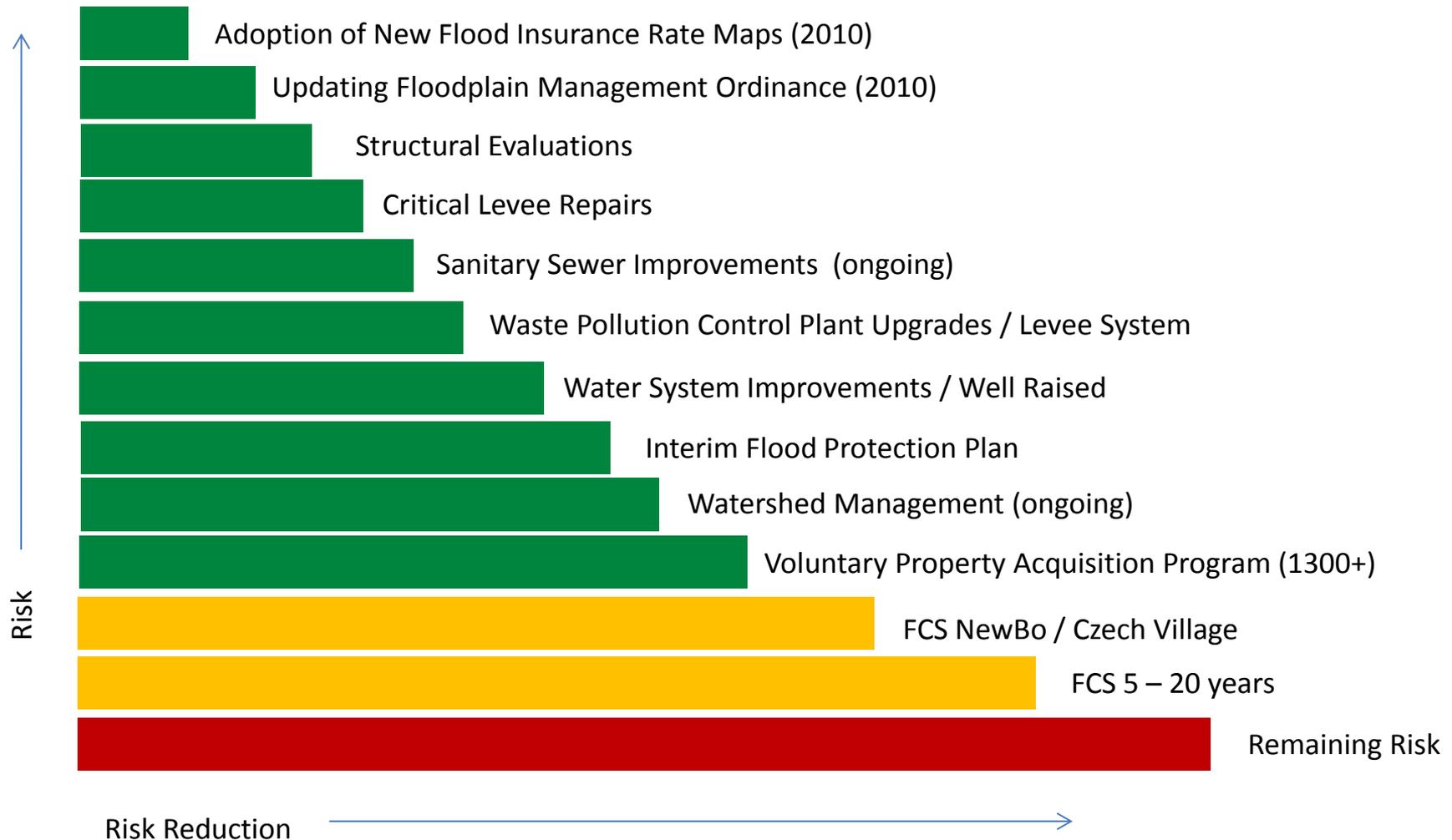
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Flood Control History at a Glance

- **2008:** Interim flood control plan and concept for permanent protection
- **2009 – 2014:** Acquisition program, flood recovery, GRI funding
- **December 2014:** Logo and branding finalized
- **December 2014 – July 2015:** Public outreach
- **June 2015: Cedar River Flood Control System Master Plan adopted**
- **July 2015:** Public unveiling and celebration
- **October 2015:** Aesthetic Guidelines adopted
- ***Next 15 – 20 years: Design and Construction***



Flood Risk Reduction | *Progression of Protection*



Today's Flood Control System

The FCS Master Plan:

- Adopted by City Council on June 23, 2015
- Provides direction for implementation and construction
- Protection to 2008 flood volume on both sides of Cedar River

System Components:

- Floodwalls, levees and gates
- Raised approaches to Edgewood Road Bridge over Cedar River
- Replaced 8th Avenue Bridge over Cedar River
- Aesthetic elements that reflect our community's culture, history and vision



Current Endeavors



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Reducing Flood Vulnerability

- Pre-FCS risk reduction, assets moved out of harm's way
- Water supply and sewer treatment protected
- Hone “routine” response to high water: High water event in 2015 = business as usual for NewBo
- Solid interim plan
 - Hesco Barriers
 - Tiger Dams
 - Temporary Pumps
- First Affected, First Protected



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Successfully Executing Interim Protection

- **Sinclair/NewBo Area**
 - Current flood fighting elevation: 711.5
 - Interim protection elevation: 721.5 or 40-year storm
- **Czech Village Area**
 - Current flood fighting elevation: 711.5
 - Interim protection elevation: 720.0 or a 30-year storm



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Strategy on Future Protection

- Priority on construction to protect low lying areas until funding is complete
- Continue to pursue additional funding
- Retain position in USACE authorization and GRI agreement
- Construct least expensive sections first to maximize interim protection
 - Levees
- Continue to improve plan
 - More automatic protection, not relying on labor intensive human installation



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Pace & Schedule



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Financials & Federal Timelines

- Short term schedule does not currently hinge on accelerating GRI
- Project on pace with all federal timelines and current funding stream
- Project development factors with fixed duration:
 - Property Acquisition private and commercial
 - Permitting IDNR, USACE, FHWA
 - RR coordination
 - Environmental processes
 - Archaeological Recovery

State GRI Funding

- Represents approximately 50% of project costs
- Spread out until year 2033
- Balance currently unfunded.

Schedule can be accelerated once balance of funding is secured.



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Funding

Cost Opinion

- Current (2016).....\$425 million
- Total cost with inflation (estimated over 20 yrs).....\$625 million

Current Resources

- CDBG Grant @ Sinclair.....\$9.99 million
 - Expires No 2017
- State Sales Tax Increment.....\$267 million
 - Annual allotments through 2033
- Local Match bonds FY 17.....\$1 million
 - \$109 million additional local match required through 2033



Acceleration & Financial Considerations

- Short term construction schedule (0-5 years) does not accelerate with additional funds. Bid schedule not impacted for:
 - South Time Check levee and utility relocation
 - Quaker flood wall
 - NewBo pump station
 - Sinclair levee
 - Czech Village levee and utility relocation
- Pay-as-you-go vs. Bonding against GRI and adding interest



Comparison to Other Cities

Description	Cedar Rapids, Iowa	Grand Forks, North Dakota	Truckee River, Nevada	Fargo-Moorhead, ND-MN	New Orleans, Louisiana
Length of System (miles)	6.47 miles	11.46 miles		63 miles	400 miles
Length Levee (% of total)	2.64 miles (41%)	9.78 miles (85%)	5.9 miles	28 miles (44%)	
Length Floodwall (% of total)	2.46 miles (38%)	1.68 miles (15%)	1.82 miles		
Length Gates	0.37 miles (6%)	7 stop log closure structures			Dozens of road gates that allow for evacuation.
Length Removable Walls (% of total)	1.0 mile (15%)	0.50%			0.00%
Number of new Pump Stations	13	12	1		At least 6
Protection Level (Yr. storm)	500-Year +	500-Year			100 Year
Detention Storage				50,000 Acre Feet	
Interim Protection During Construction (Y/N):	YES	YES	NO		Yes
Time from Disaster to Completion (Yrs.)	28 Years	10 Years	Ongoing since 1997		7 Years
Time from Design to Completion (Yrs.)	20 Years	8 Years	Ongoing since 1998		7 Years
Railroad Coordination (Y/N)	YES	YES	YES		YES
Cost of System (\$)	\$625 Million	\$409 Million	\$321 Million	\$2.1 Billion	\$15.5 Billion
USACE Funded (Y/N)		YES			YES
% Federal Funded	13%	50%	65%	21%	100%
% State Funded	42%	25%		57% North Dakota 5% Minnesota	0%
% Local Funded	18%	25%	\$4,000,000/year from sales tax		0%

Upcoming Milestones



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Bid Calendar 2016

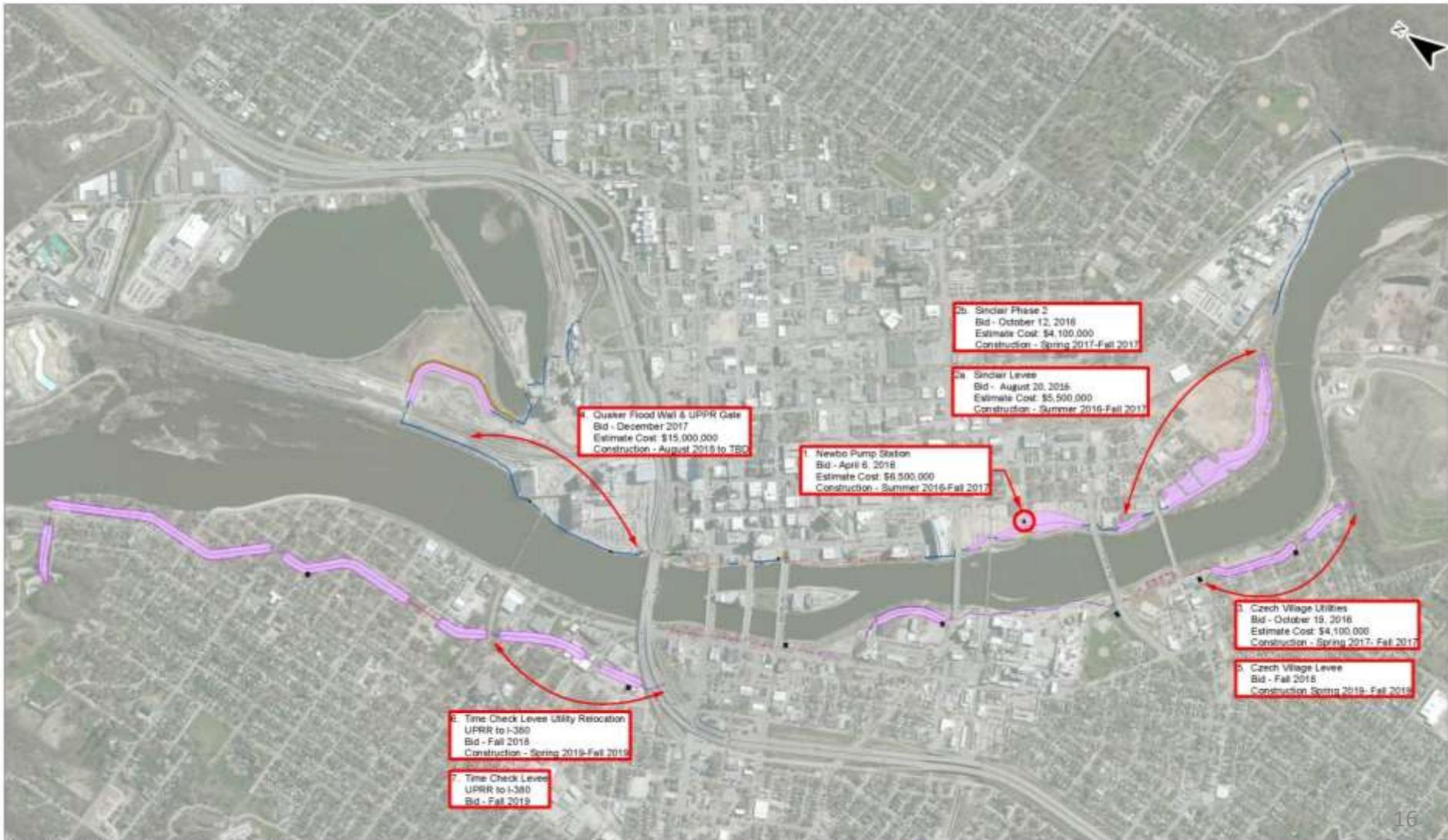
- Trail from 2nd to 3rd Ave (CRST) **March, 2016** ✓
- Lot 44 at 10th Ave Pump Station **April, 2016** ✓
- Sinclair Levee from African American Museum to Alliant Substation
August, 2016
- Czech Village Utility Relocation **October, 2016**
- Sinclair Pump Station, Detention and Structural **November, 2016**



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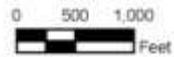
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**Draft 5 YR FCS Construction Plan
2016-2020**

Print Date April 18, 2016

LEGEND			
	Permanent Wall		Levee
	Removable Wall		Detention & Development Area
	Combination Wall		Pump Station
	Alternate Clear Lake Alignment		Storm Sewer Outfalls
	Gate		Gravel Road
			Trail



Interior Drainage Update



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Designing for the **volume** of rainfall discharging into the river.



2 year storm



5 year storm



100 year storm

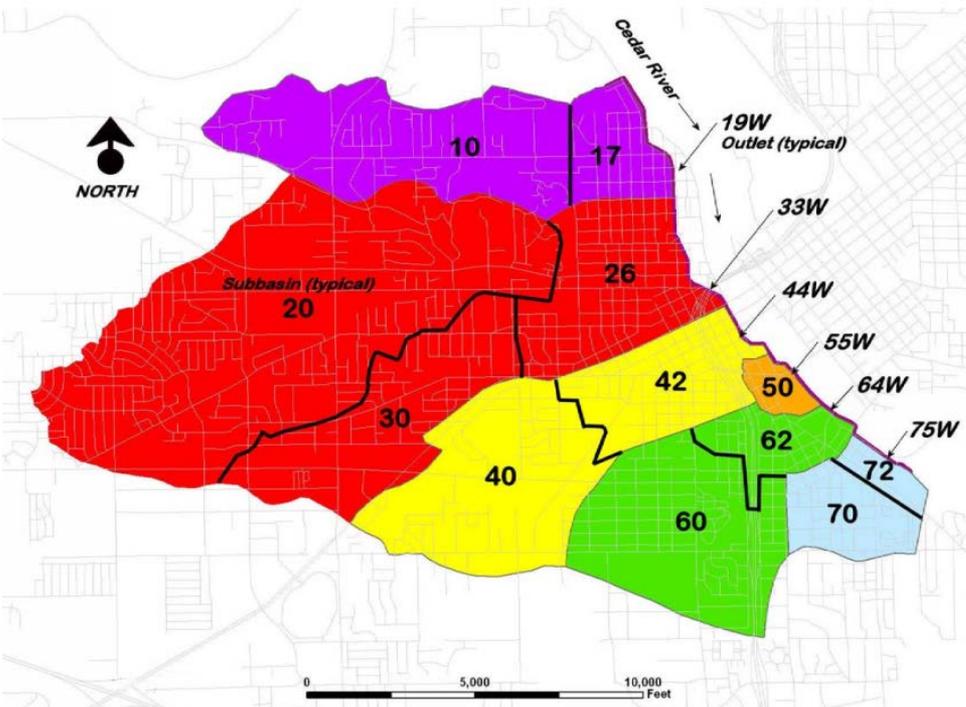
Designing for the **intensity**: how fast the volume of runoff discharges into the river.



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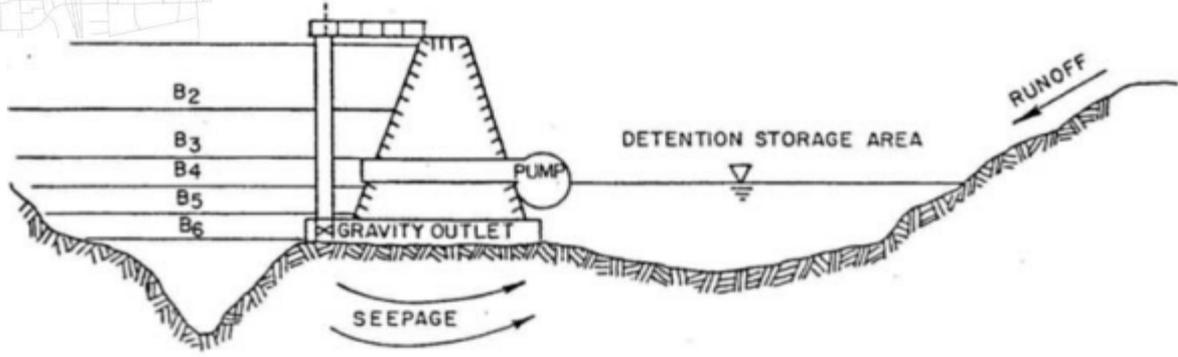
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West Side Interior Drainage



BACKGROUND

- USACE Feasibility Study HEC-HMS model
- 9.2 square mile watershed
- Six recommended pump stations



Modeling Updates

- Urban drainage model
 - Major pipes, channels and detention
 - 2D surface flow and ponding
- Update Rainfall Data - NOAA Atlas 14 Precipitation
- Nested Atlas high peak intensity rainfall distribution



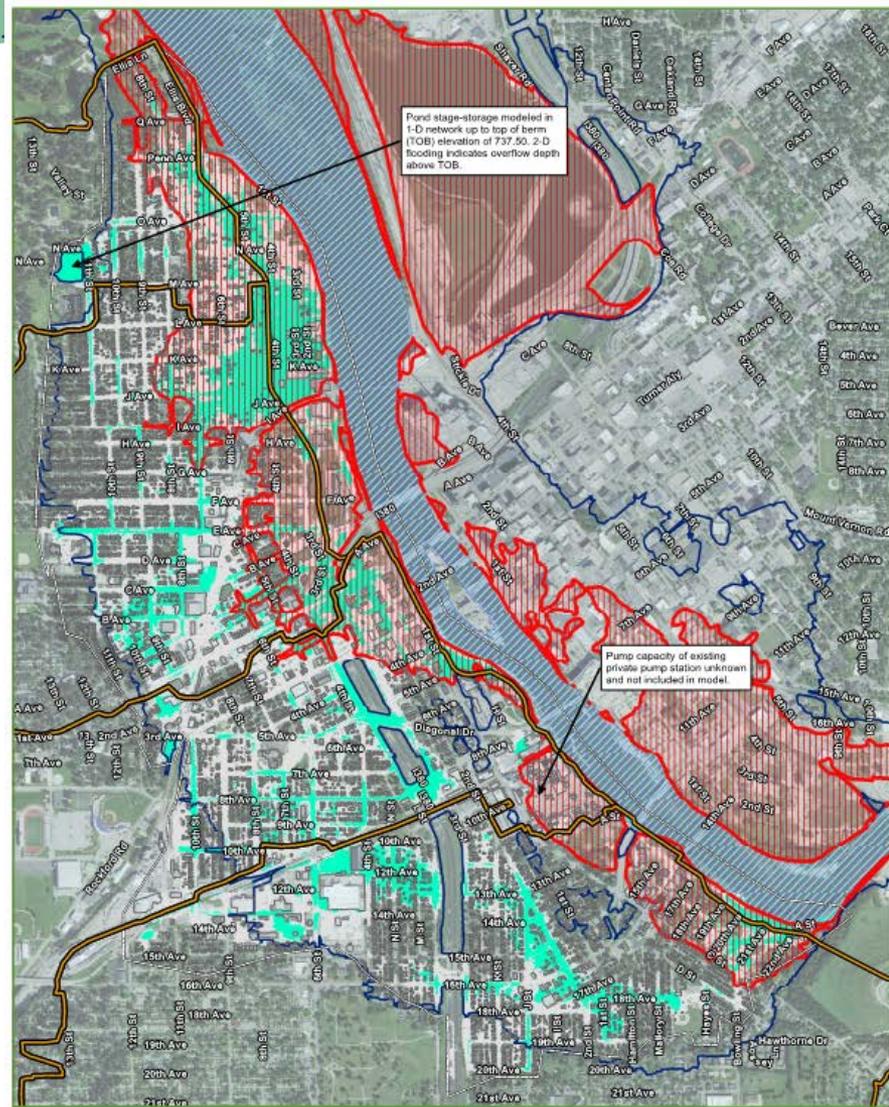
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West Side Interior Drainage

- ISSUE 1: Runoff exceeding storm system capacity causes interior ponding, independent of the flood control system or river flooding
- IMPORTANCE: Safety, property damage, floodplain mapping implications
- RECOMMENDATION: Stormwater Master Plan policies to reduce runoff and peak flow rates:
 - upland detention
 - infiltration
 - green infrastructure



**Cedar Rapids Flood Control System
West Side Interior Drainage**

**Existing Storm Sewer With
2-Year River Stage**

Ponding Depth Greater than or Equal to 1-ft for 100-Year Storm

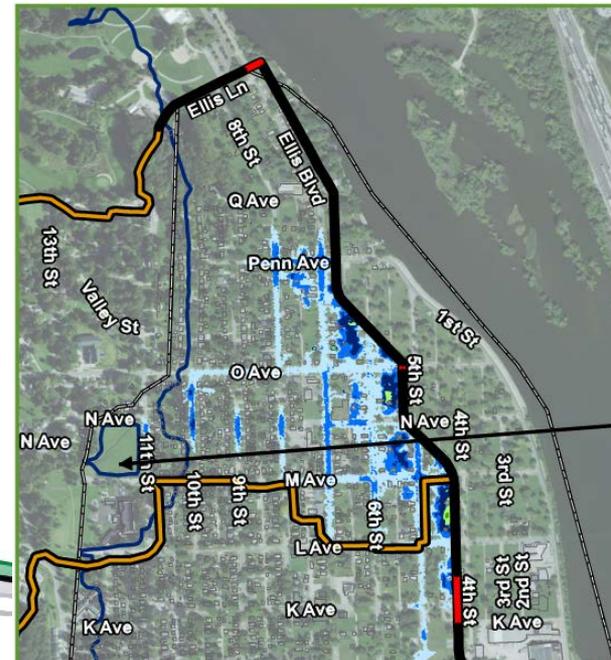
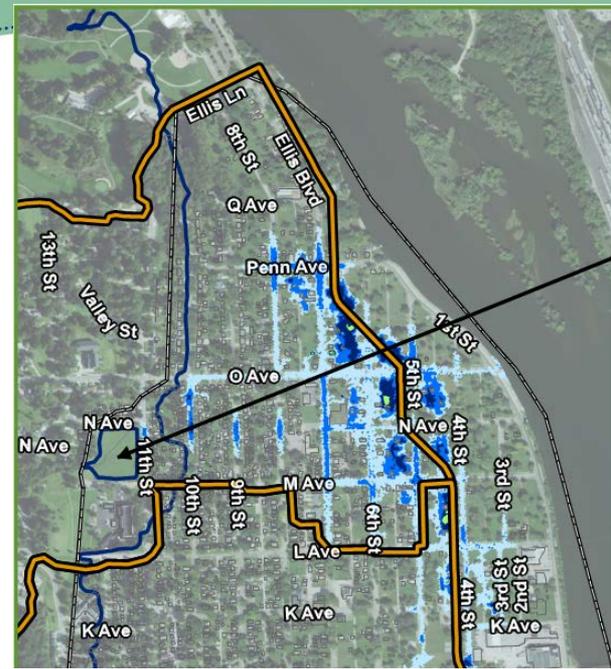
Exhibit 14B

Legend	Ponding Depth (ft)	
<ul style="list-style-type: none"> Basin 2D Modeling Extent Buildings 2008 Flooding Extents Floodplain Zone Floodway Zone 	<ul style="list-style-type: none"> Less than 1-ft Greater than or Equal to 1-ft 	



West Side Interior Drainage

- ISSUE 2: Increased ponding where levee blocks overland flow
- IMPORTANCE: Safety, property damage, floodplain mapping implications
- RECOMMENDATIONS:
 1. Increase pipe capacity from levee to river
 2. Add dry side detention near pump stations



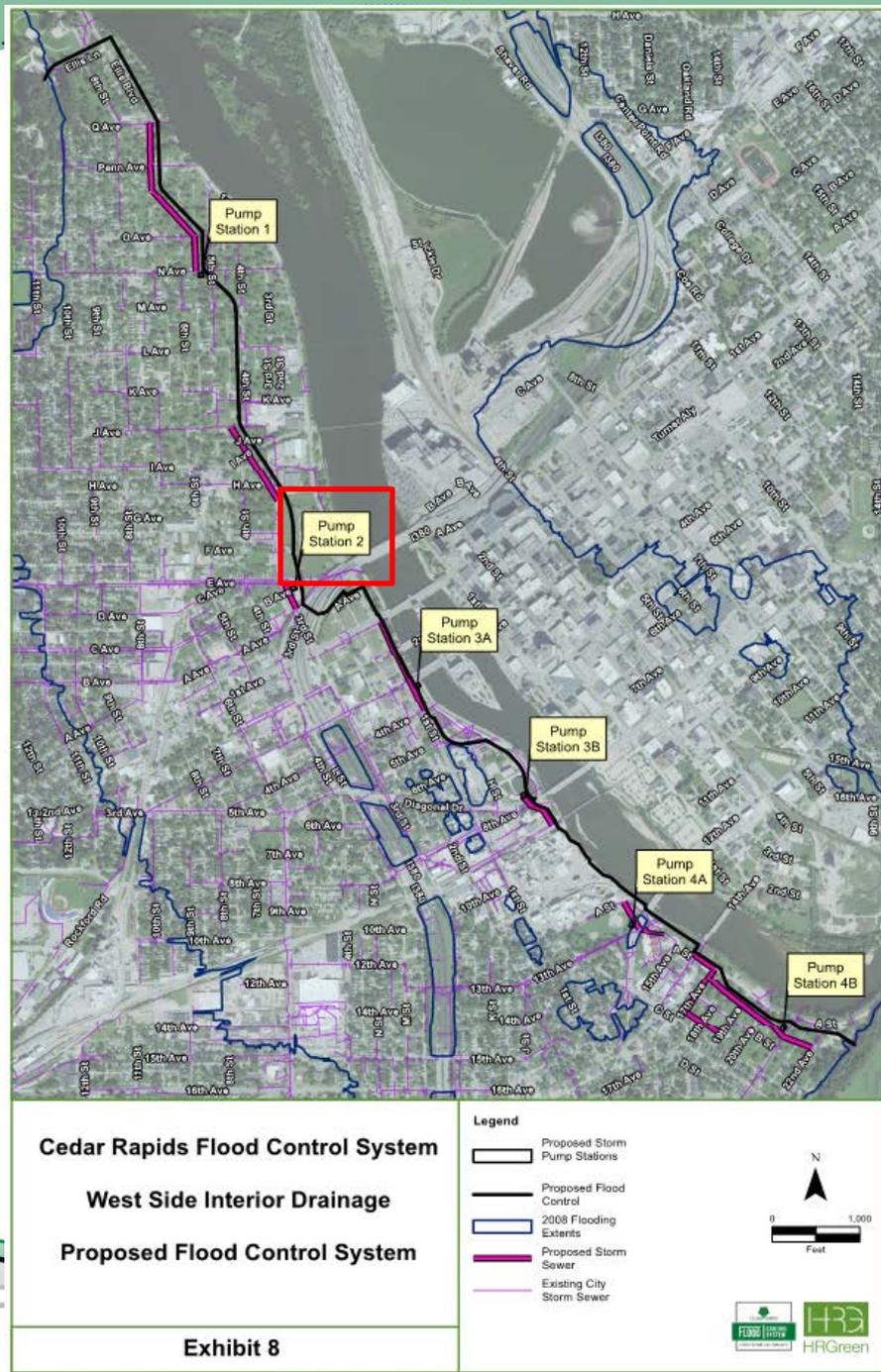
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West Side Interior Drainage

- ISSUE 3: Estimated cost to pump current flows from 1% coincident probability rainfall event is \$39-\$47M; Total budgeted for all stations \$7.4M.
- BACKGROUND:
Previous work assumed
 - 3-month storm, average intensity
 - no pump station building
- OPTIONS:
 1. Build pump stations for current flows at additional cost
 2. Accept greater risk and build smaller pump stations
 3. Adopt aggressive stormwater runoff reduction policy to reduce flows and pump station sizes



Interior Drainage

Moving Forward

- Approve Interior Drainage Policy
- Risk and impacts to existing structures
- Coordination with Storm Water Master Plan
- Minimum building elevation for redevelopment
- Alternatives for Vinton Ditch



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Interior Drainage

Policy

- Stormwater pump stations for interior drainage runoff are recommended to have a pumping capacity equal or greater than the peak runoff from the 5-year storm event
- The City should pursue upland stormwater runoff detention and infiltration in each watershed
- Policy Development Method



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