



**AGENDA
CITY OF CEDAR FALLS, IOWA
CITY COUNCIL WORK SESSION
MONDAY, JULY 19, 2021
5:20 PM AT CITY HALL**

The City is providing in-person and electronic options for this meeting in accordance with the Governor's Proclamation of Disaster Emergency regarding meetings and hearings. The City encourages in-person attendees to follow the latest CDC guidelines to reduce the risk of COVID-19 transmission.

The meeting will be accessible via video conference and the public may access/observe the meeting in the following ways:

- a) By dialing the phone number +13126266799 or +19292056099 or +12532158782 or +13017158592 or +13462487799 or +16699006833 and when prompted, enter the meeting ID (access code) 962 7287 1738.
- b) iPhone one-tap: +13126266799,,96272871738# or +19292056099,,96272871738#
- c) Join via smartphone or computer using this link: <https://zoom.us/j/96272871738>.

Call to Order by the Mayor

- 1. Northern Cedar Falls Drainage.
(40 Minutes, Public Works Director Schrage)

- 2. Human Rights Commission-Joint Meeting.
(50 Minutes)

term flooding and sediment deposition due to the large quantity of water that the Cedar River conveys.

Several topographic and man-made factors exist surrounding Island Park that make flood reduction difficult without some form of major structural improvement (i.e. a levee, reservoir, or major excavation project). Primarily, the park sits in a naturally low area across the river from a high bluff. **Island Park sits in a natural floodplain area in which flooding is “normal”.** The park also sits upstream of a bridge, road embankment, and dam which restrict the movement of floodwater and increase the potential for sediment deposition upstream. **Because of these factors, improvements to Snag Creek would likely be overshadowed by the impact of the Cedar River.**

CONCEPTUAL COST OPINION

The cost opinions presented herein are highly conceptual in nature. Due to the potential project’s location in a FEMA regulatory floodway, any improvements would have to be studied with hydraulic modeling and permitted through the Iowa Department of Natural Resources. Permitting through the U.S. Army Corps of Engineers is also likely since construction would occur on a large river and possibly result in displacement of wetlands.

Snag Creek and Island Park are part of a complex hydraulic system that extends further downstream throughout the floodplain of the Cedar River. Improvements to Snag Creek would need to be studied along with a much larger area. The scope of work would need to study whether downstream bottlenecks such as highway bridges along highways 218/27/58 are causing flooding issues at Island Park and Snag Creek. A significant amount of additional drainage structures throughout the system would need to be studied. Due to the complex nature of the Cedar River, the diversion channel that carries excess water through the area southwest of Big Woods Lake and through George Wyth State Park would also need to be studied. This would require a significant amount of hydraulic modeling, topographic survey, and environmental investigation to pinpoint potential problem areas.

While a detailed cost breakdown of such a feasibility study is not provided with this memorandum, it is estimated that consultant fees would likely be around **\$175,000-\$200,000 for a feasibility study and engineering design** due to the modeling, permitting, survey, environmental, and design work required. This fee includes studying Snag Creek and the area surrounding Island Park. Depending on where bottlenecks are and the nature of necessary

improvements needed to improve flooding conditions at Island Park, **construction costs for this alternative could range from several hundred thousand dollars to over one million dollars.**

Conceptual construction costs were identified for ideas presented in the “Saving Island Park” report. The report centered on moving the existing trail that separates Snag Creek from the Cedar River to create a larger access area and replacing the trail crossing further to the northeast. This would involve substantial excavation, seeding and erosion control, and construction of pipes beneath the new trail crossing to convey flow when needed. A summary of conceptual construction costs is summarized below in Table 1. These improvements were estimated to cost **\$484,000.**

Additional improvements to Snag Creek would add to the cost presented in Table 1. For example, rock arch rapids for kayak recreation could cost at least **\$300,000-\$500,000** depending on the level of amenities desired based on similar scale projects. Cost of rock would be the primary driver of such a project.

Ultimately, there is no long term fix for flooding at Island Park. The area is a natural floodplain within a larger hydraulic system. Even with large scale improvements to flooding conveyance in the vicinity of Island Park and downstream, major improvements to flooding at Island Park are very unlikely due to the quantity of water that the Cedar River conveys and the topographic characteristics of the area. Minute benefits to smaller flooding events may be seen but likely won’t justify the cost to achieve these benefits.

Table 1

OPINION OF PROBABLE CONSTRUCTION COSTS – “SAVING ISLAND PARK” REPORT					
ITEM #	DESCRIPTION	QTY	UNIT	UNIT PRICE	EXTENDED PRICE
1	Excavation, Class 10 (Trail)	5800	CY	\$12.00	\$69,600.00
2	Excavation, Class 10 (Snag Creek)	6700	CY	\$12.00	\$80,400.00
3	Removal of Shared Use Path	1000	SY	\$15.00	\$15,000.00
4	Shared Use Path	2100	SY	\$65.00	\$136,500.00
5	Pipe Culverts for Spillway	200	LF	\$100.00	\$20,000.00
6	Seeding/Erosion Control	1	LS	\$20,000.00	\$20,000.00
7	Mobilization (5% of Total)	1	LS	\$1.00	\$17,000.00
Subtotal:					\$358,500
Contingency (20%):					\$71,500
CONSTRUCTION TOTAL:					\$430,000.00
<u>Other Project Costs</u>					
Engineering, Construction, and Administration (15%):					\$54,000.00
TOTAL PROJECT COST:					\$484,000.00

Working with nature to restore Island Park.

Item 1.



Flooding is the number one problem.



Until flooding is dealt with any improvements
are cosmetic and temporary.

Item 1.



The Army Corps of Engineers has begun “Engineering with Nature” and is looking for what they call “Triple Win Solutions”

“Engineering With Nature (EWN) is.....the intentional alignment of natural and engineering processes to efficiently and sustainably deliver economic, environmental, and social benefits associated with water resource infrastructures through collaborative processes. “



Known by various names such as

Low impact development

Nature-based solutions

Green infrastructure

Natural infrastructure

Engineering with Nature.



In Other
Words
Modern
approaches
to flooding
are moving
away from
concrete
lined
solutions.



To

Naturally clean water.

Wildlife Habitat

Recreational space

Economic benefits

Quality of life

Flood reduction
storing and absorbing
flood water.

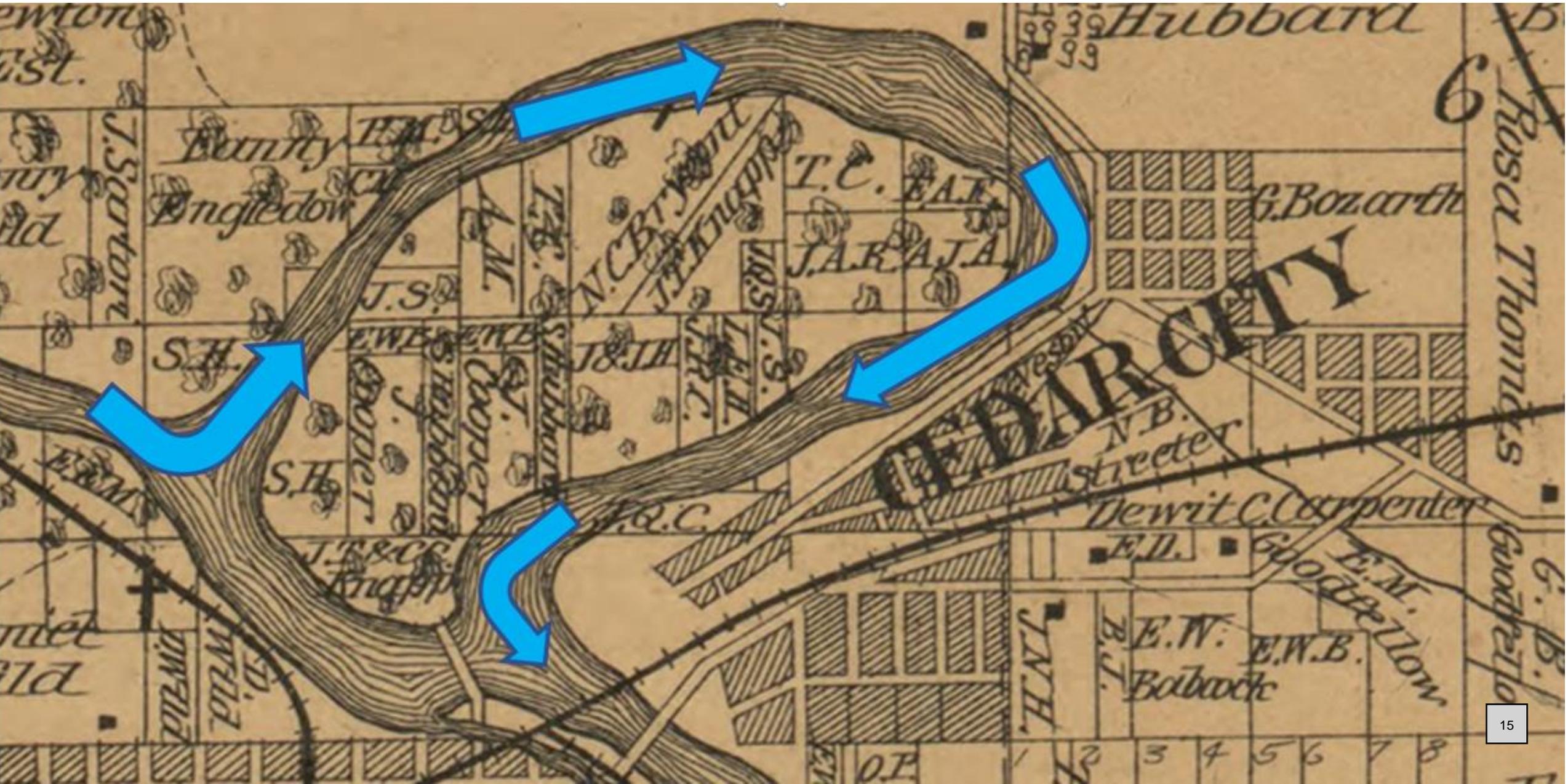
Giving water room to
spread out instead of
up.



WIN WIN WIN and WIN AGIN

A Triple win Proposal

- The solutions in this proposal are based on accepted Nature Based solutions to flooding as encouraged by the Army Corps, Iowa DNR, FEMA EPA, USDA.
- Restoring natural waterways.
- Recharging wetland areas
- Improved water quality
- Improved wildlife habitat
- Reducing Flooding
- Reducing flood damages and economic losses
- Recreational attractions that bring in visitors and dollars
- Improved Quality of life
- Educational

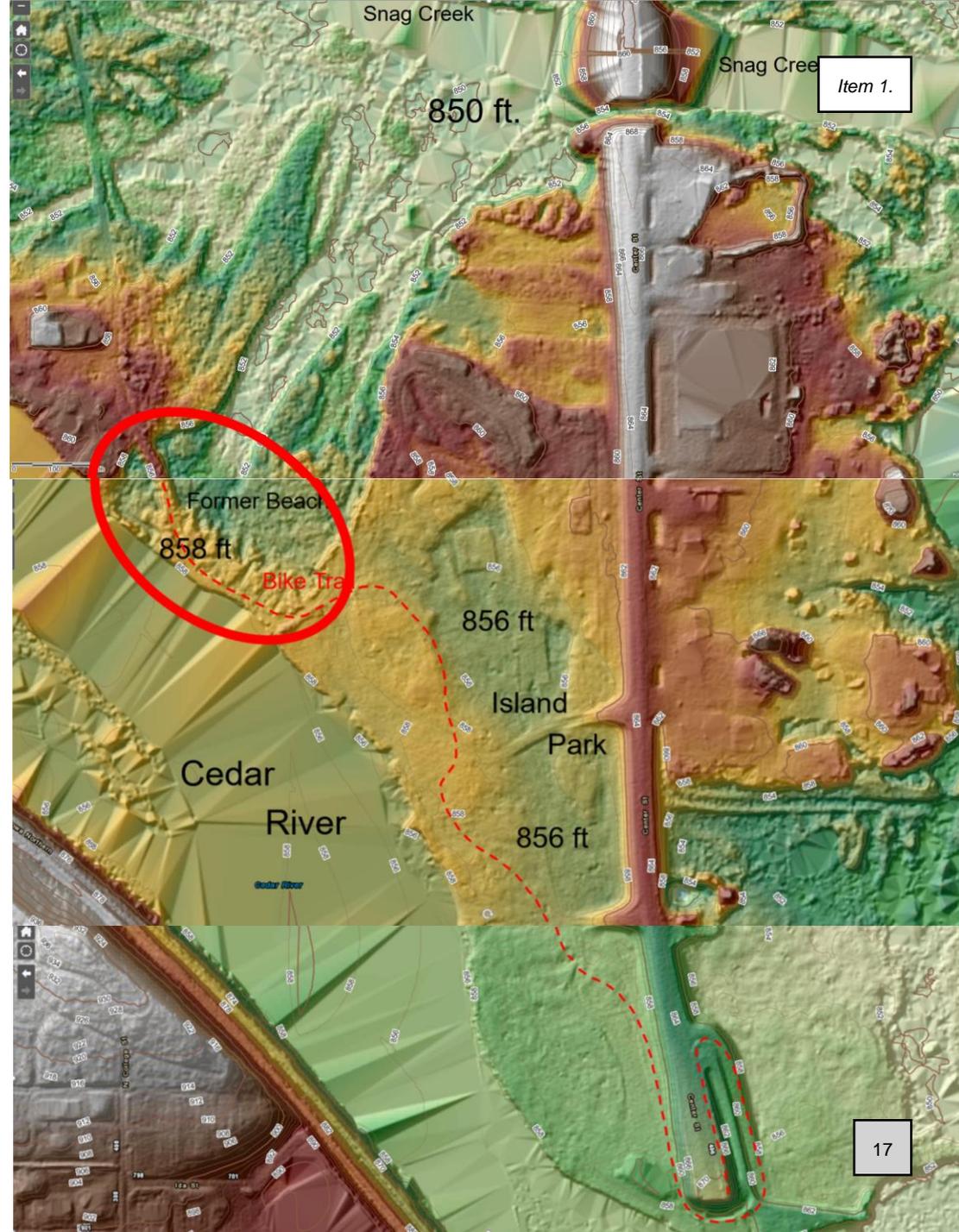


1930's aerial photo of Island Park



LiDAR Map of Island Park shows a cutoff dam now replaces the sandy beach and blocks the former river channel around Island Park.

This dam is higher than the park.



854 ft

850 ft

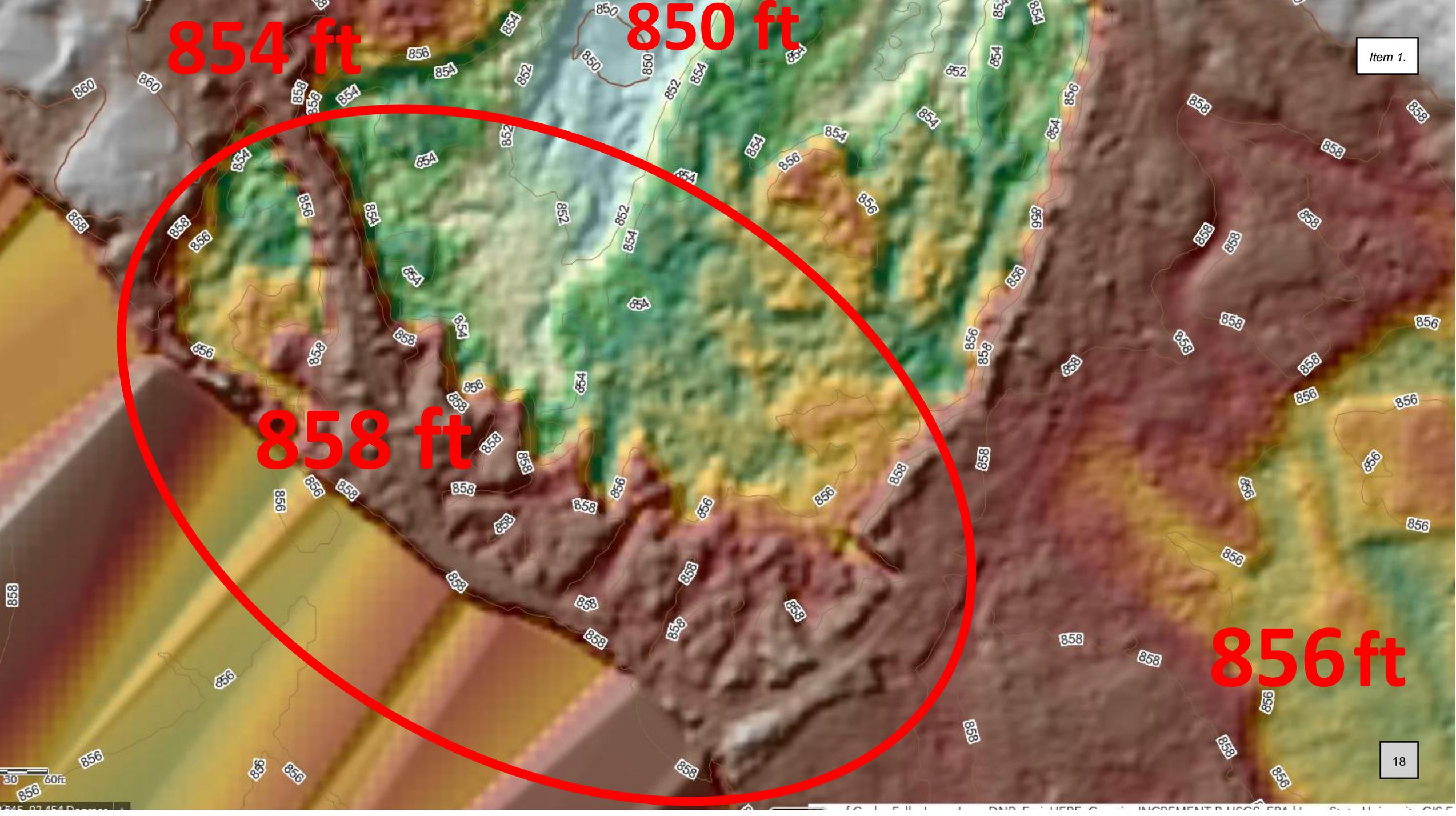
858 ft

856 ft

Item 1.

18

30 60ft

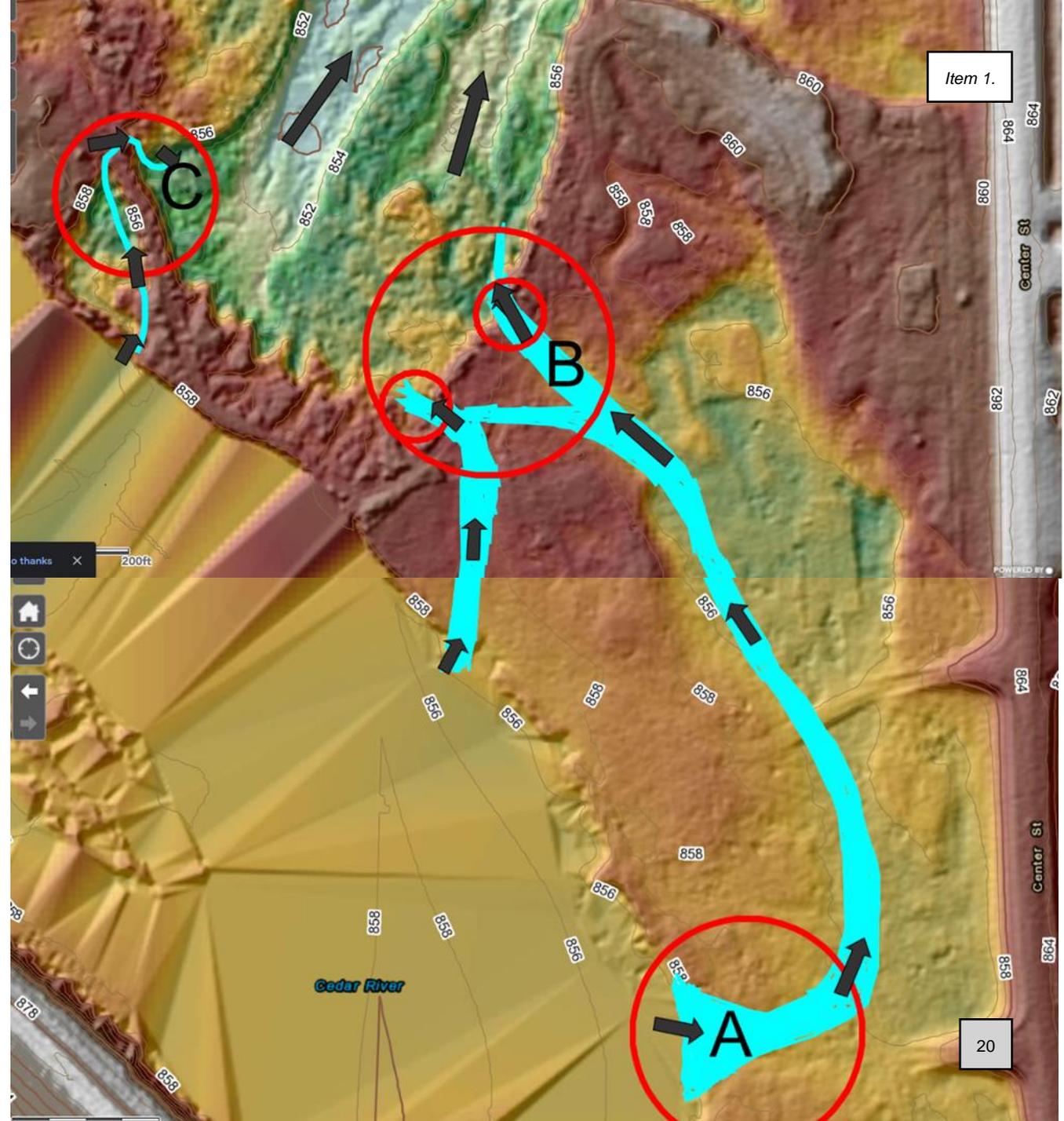


Last summer
the river was
at 90.5 ft

The cut off
dam stayed
high and dry



Instead, flood waters went around the cutoff dam through Island Park and upstream residential areas



It flooded residential areas to the north



Item 1.

Snag Creek

is

About 3 ft lower
than the river



River level

Floods Cottage Row neighborhood

Item 1.



Flooding through Island Park



Item 1.

Causing repeated Damage. Making the park unsafe and unusable. And adding repeated repair and maintenance expenses.



Iowa DNR Dam Mitigation Manual page 16

States

“Where a dam is still impounding water while infrastructure is being flooded ...flooding could be lessened if the dam’s height were reduced to an optimal level, or if the dam were removed entirely.

Solving the Flooding Problem Without Creating New Problems

- Iowa DNR suggests lowering a dam to an optimal level.
- Another popular solution the DNR promotes is to lower and convert the dam to a recreational attraction.

Alternative D: Recreational attractions

Several national engineering firms design highly recreational structures that can transform an old dam into an amenity for both locals and tourists, and add to an overall attractive setting. These can range from a mildly adventurous section of water friendly to children on innertubes (right) to a highly technical Olympic whiteater course, such as one constructed in Wausau, Wisconsin.

Construction of the first Iowa example began in Charles City in the fall of 2010 funded by local hotel / motel taxes, Iowa DNR's low-head dam public hazard program, and Iowa Great Places funding. Note in the photograph (FIGURE 4-j) that a portion of the channel is smooth and steep-sloped. That portion of the channel will provide a recreational wave for surfing by kayaks or river surf boards.



Recreational Makeover. Recreational chutes, pools, and boulders replaced a low-head dam, as hazard for innertubers in San Marcos, Texas. The area remains popular for innertubing, with added swimming and kayaking opportunities.

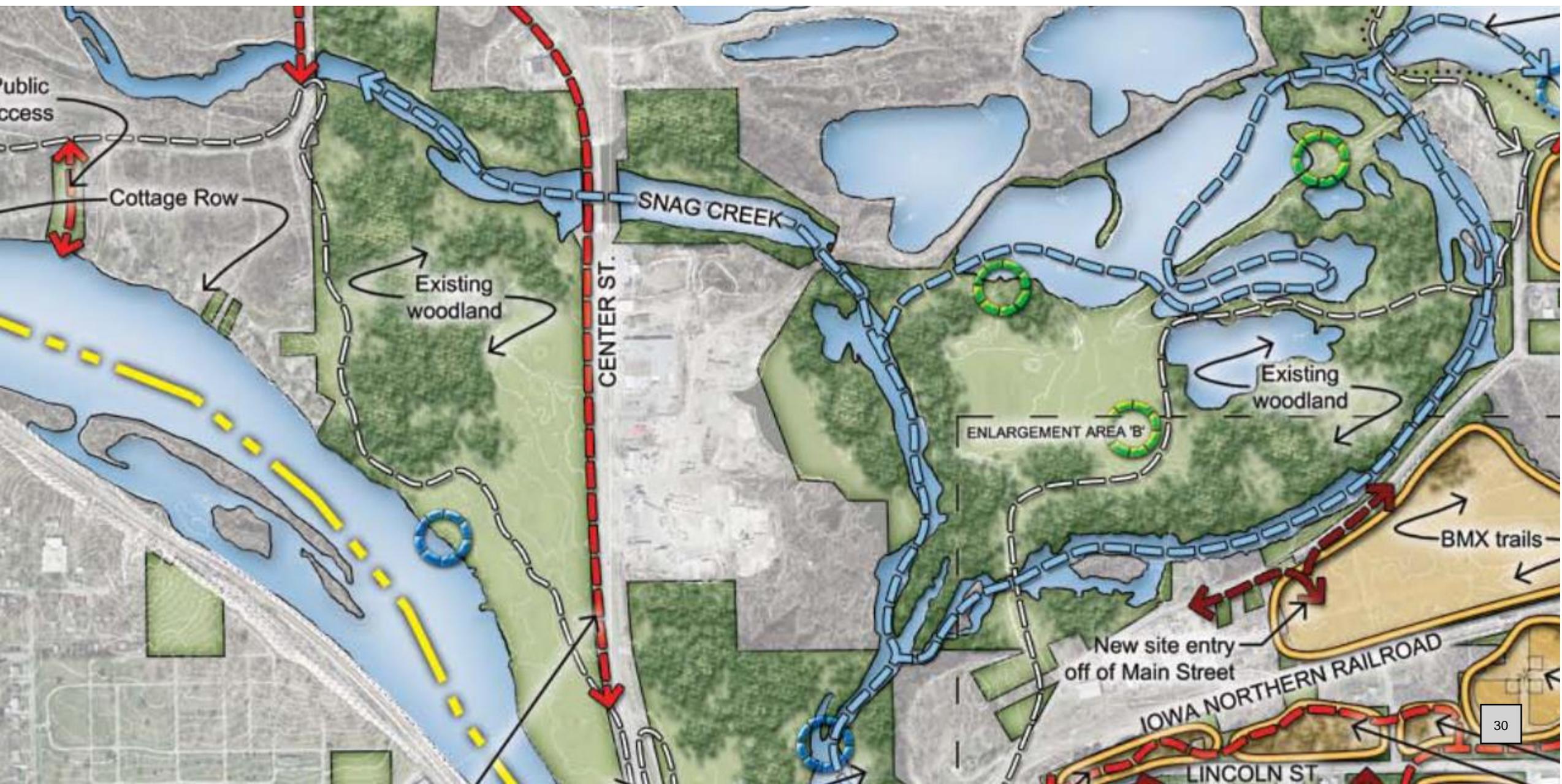




Item 1.

The 2011 Northern Cedar Falls Park and maintenance plan

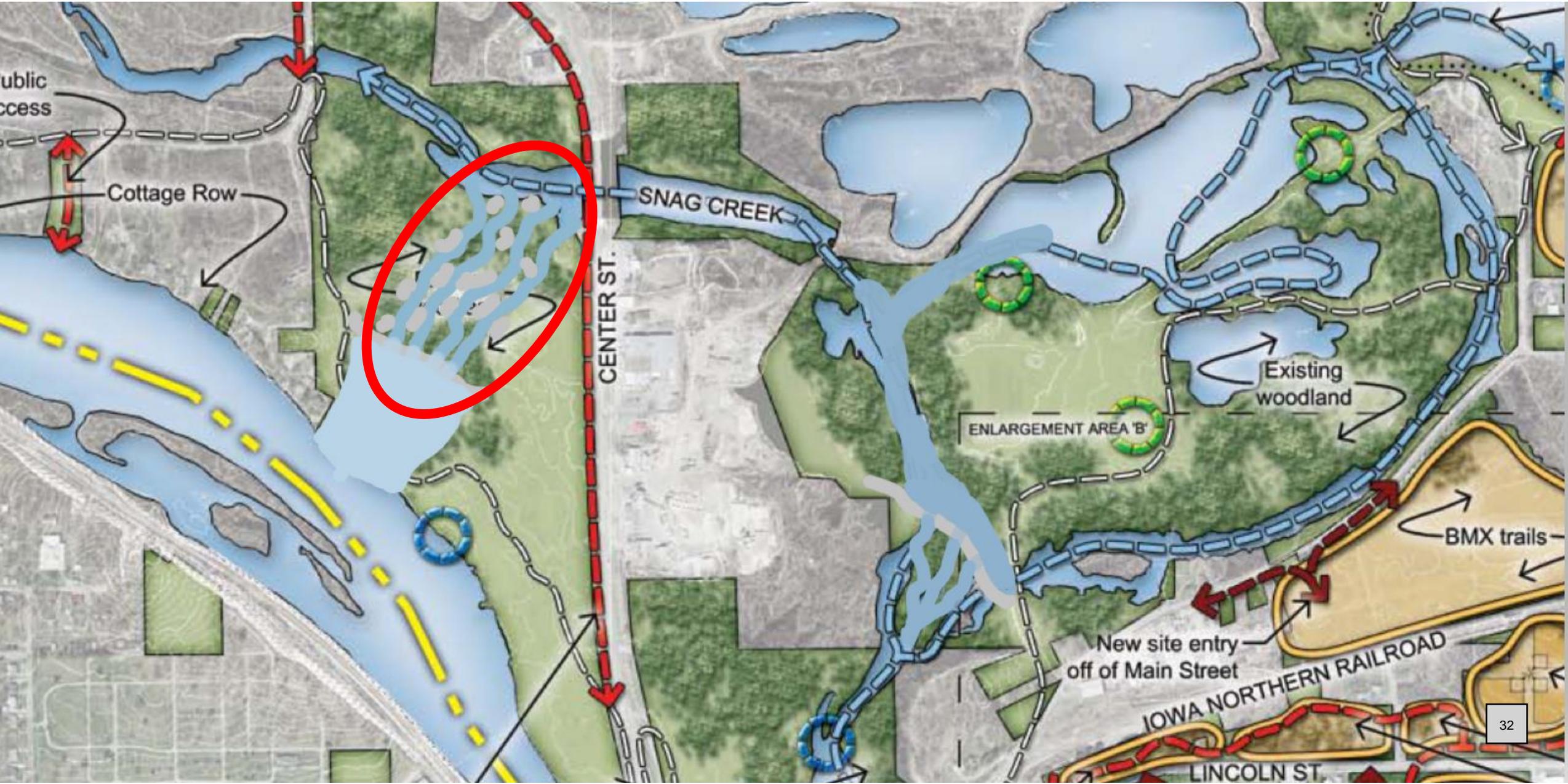
Item 1.

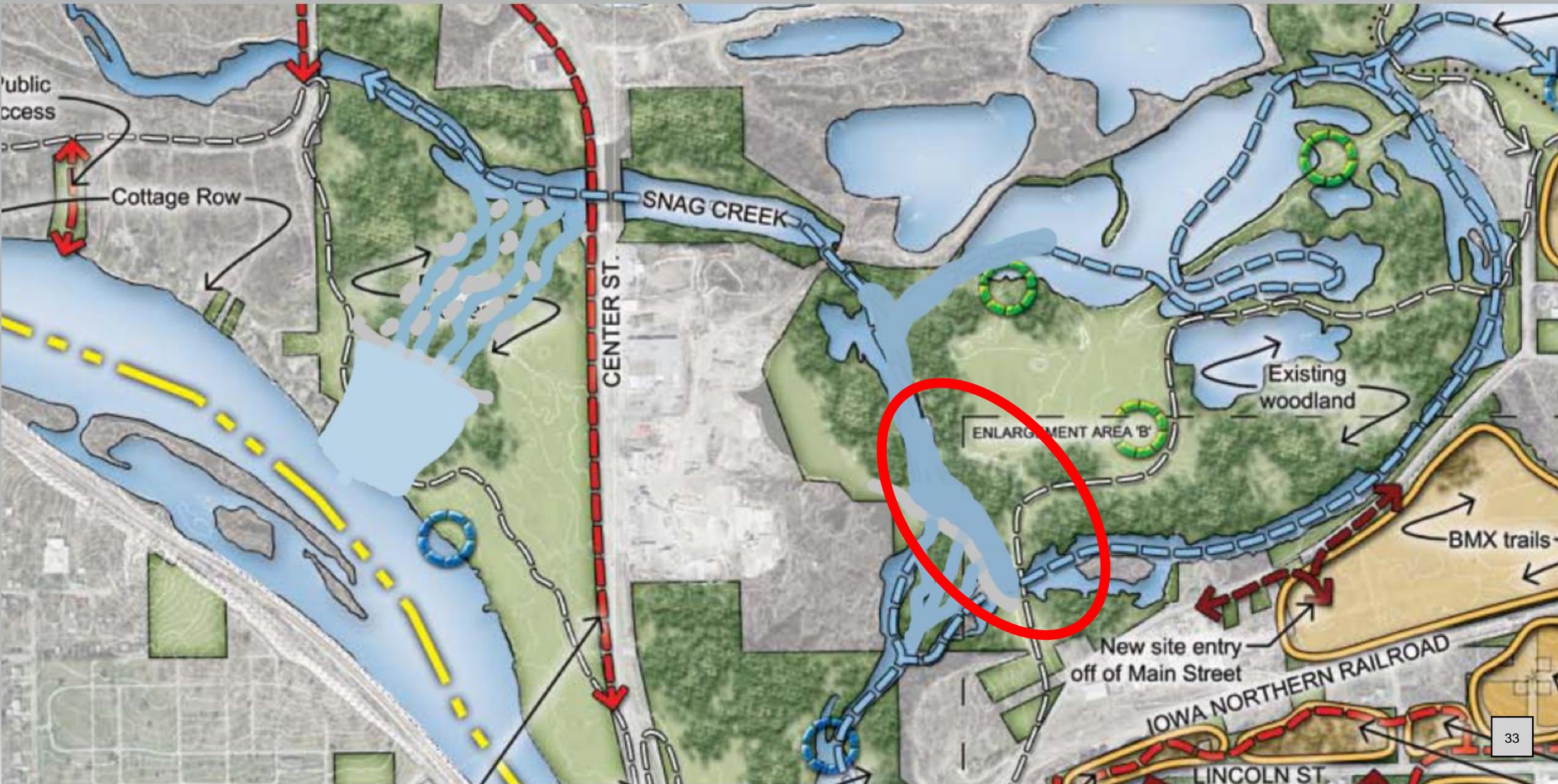


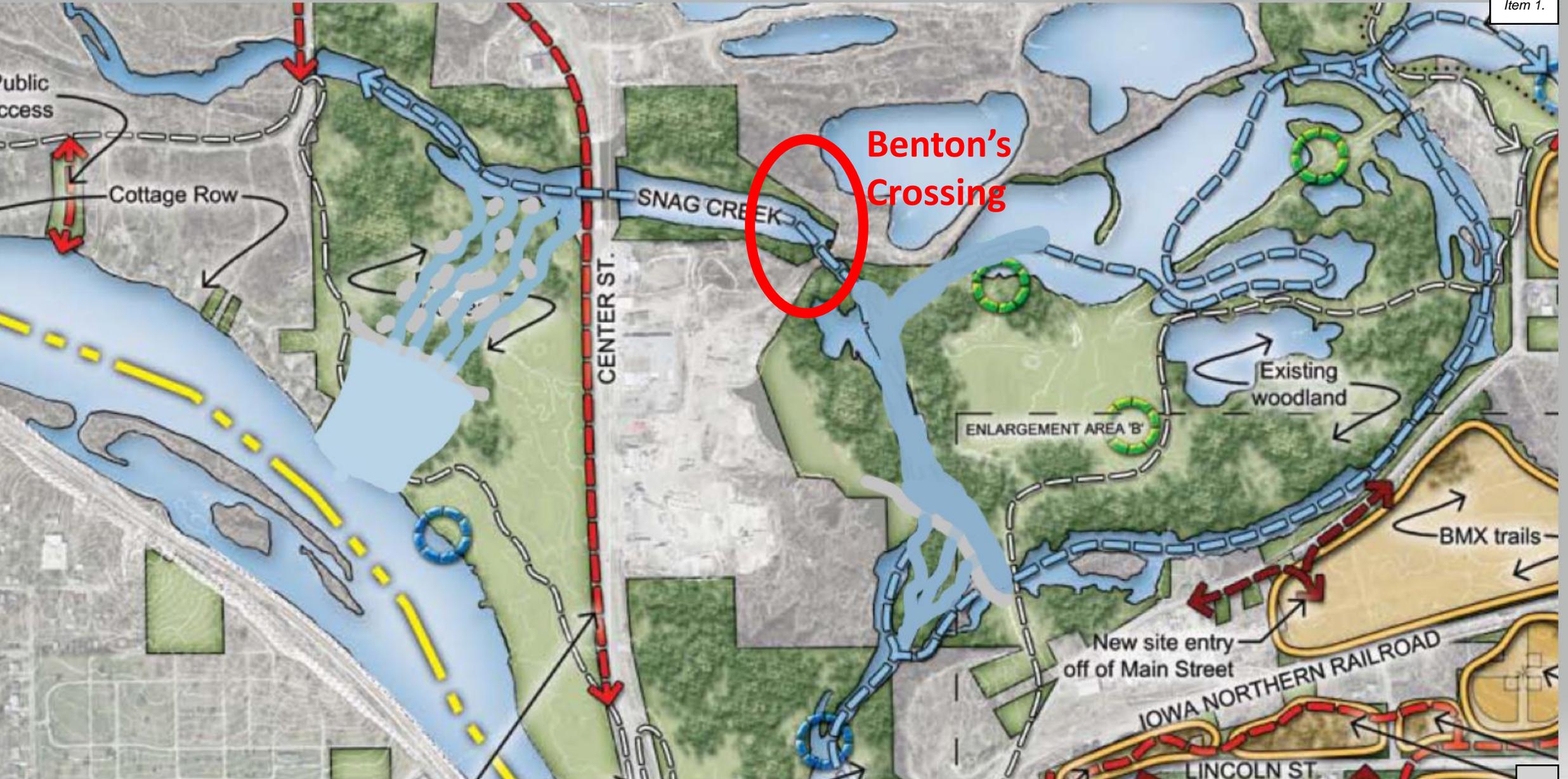
Presently
Snag Creek
has no Kayak
access.

This
beautiful
recreational
asset is
seldom used.





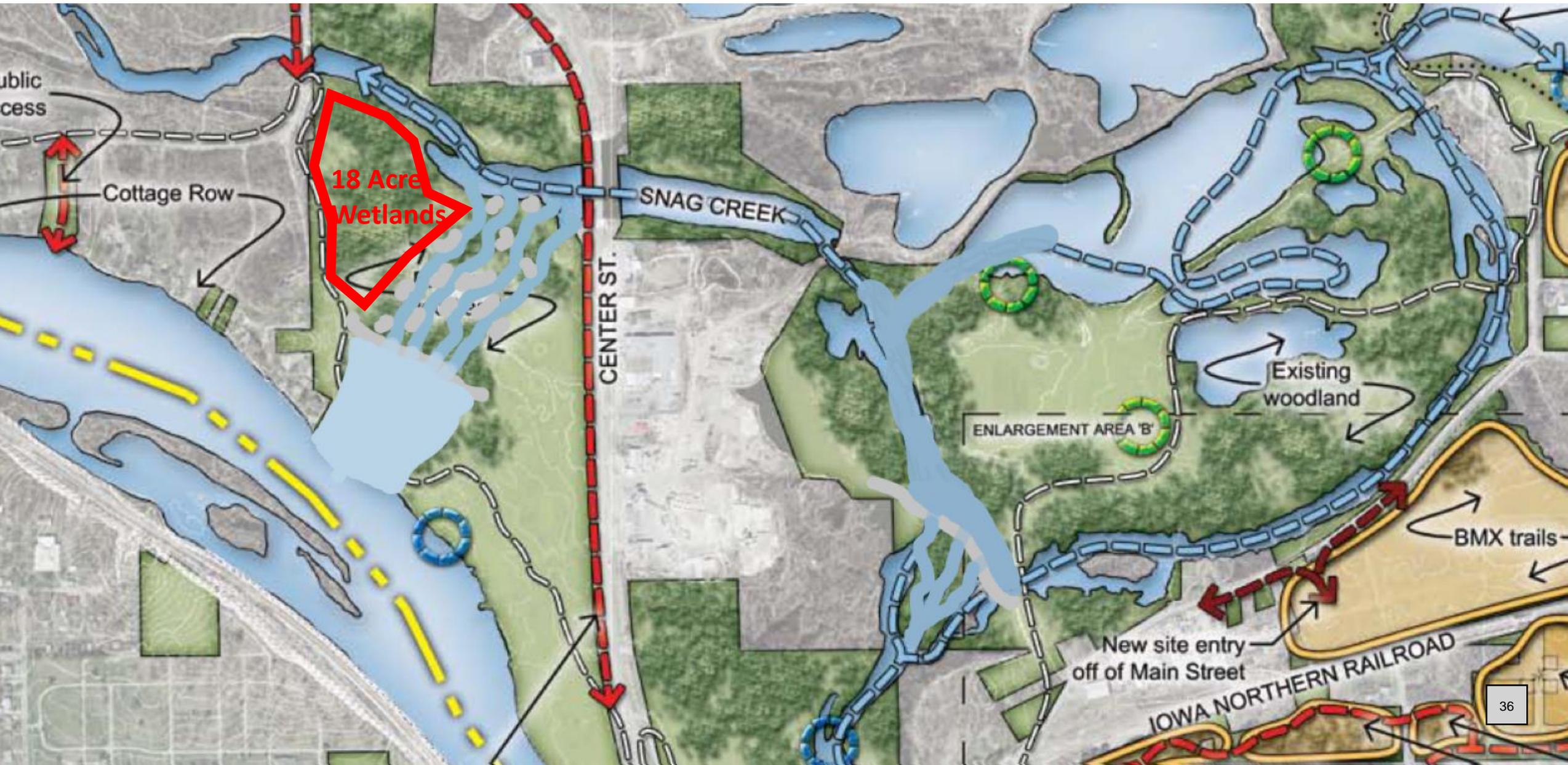




Benton's Crossing



Island Park Natural Wetlands





Item 1.





Item 1.

Reference Links

- Iowa DNR Solving Dam Problems http://publications.iowa.gov/33756/1/Dam_Mitigation_Plan_2010.pdf
- FEMA Floodplain and Stream Restoration 2015 <https://www.mass.gov/doc/floodplain-and-stream-restoration-fact-sheet/download>
- Comprehensive plan for the City of Cedar Falls 2012 <http://www.cedarfalls.com/DocumentCenter/View/2418/2012-Cedar-Falls-Comprehensive-Plan?bidId=>
- Black Hawk County “Vision 2028” <https://www.blackhawkcounty.iowa.gov/DocumentCenter/View/41/Governing-for-the-Future--A-Black-Hawk-County-Initiative-PDF?bidId=>
- FEMA Building Community Resilience with Nature-based solutions
- Federal Resources for Nature-Based Solutions 2020
- Iowa DNR River Restoration
- Iowa DNR Statewide Two-Dimensional Base Level Engineering for Iowa Flood Risk Awareness White Paper
- Army Corps of Engineers Nature Based Flood Risk Reduction <https://fas.org/sgp/crs/homesec/R46328.pdf>
- Constructed Wetlands cost
- USDA Understanding Fluvial Systems: Wetlands, Streams, and Floodplains
- EPA Wetland Restoration, Creation, and Enhancement (92 Page Guide)
- EPA Watershed Academy
- Iowa Geographic map server

Funding options:

Under the authority provided by **Section 206** of the 1960 Flood Control Act (PL 86-645), as amended, the Corps of Engineers can provide the full range of technical services and planning guidance that is needed to support effective flood plain management. **General technical assistance efforts under this program includes determining: site-specific data on obstructions to flood flows, flood formation, and timing; flood depths, stages or floodwater velocities; the extent, duration, and frequency of flooding; information on natural and cultural flood plain resources; and flood loss potentials before and after the use of flood plain management measures.** Types of studies have been conducted under the FPMS program include: flood plain delineation/hazard, dam failure analyses, hurricane evacuation, flood warning, floodway, flood damage reduction, stormwater management, flood proofing, and inventories of flood prone structures.

Cost Sharing Requirements. **Efforts under this program are generally conducted at 100 percent federal expense,** except in those instances where the requestor is another Federal agency or a private party. In those cases the work is conducted on a 100 percent cost recovery basis.

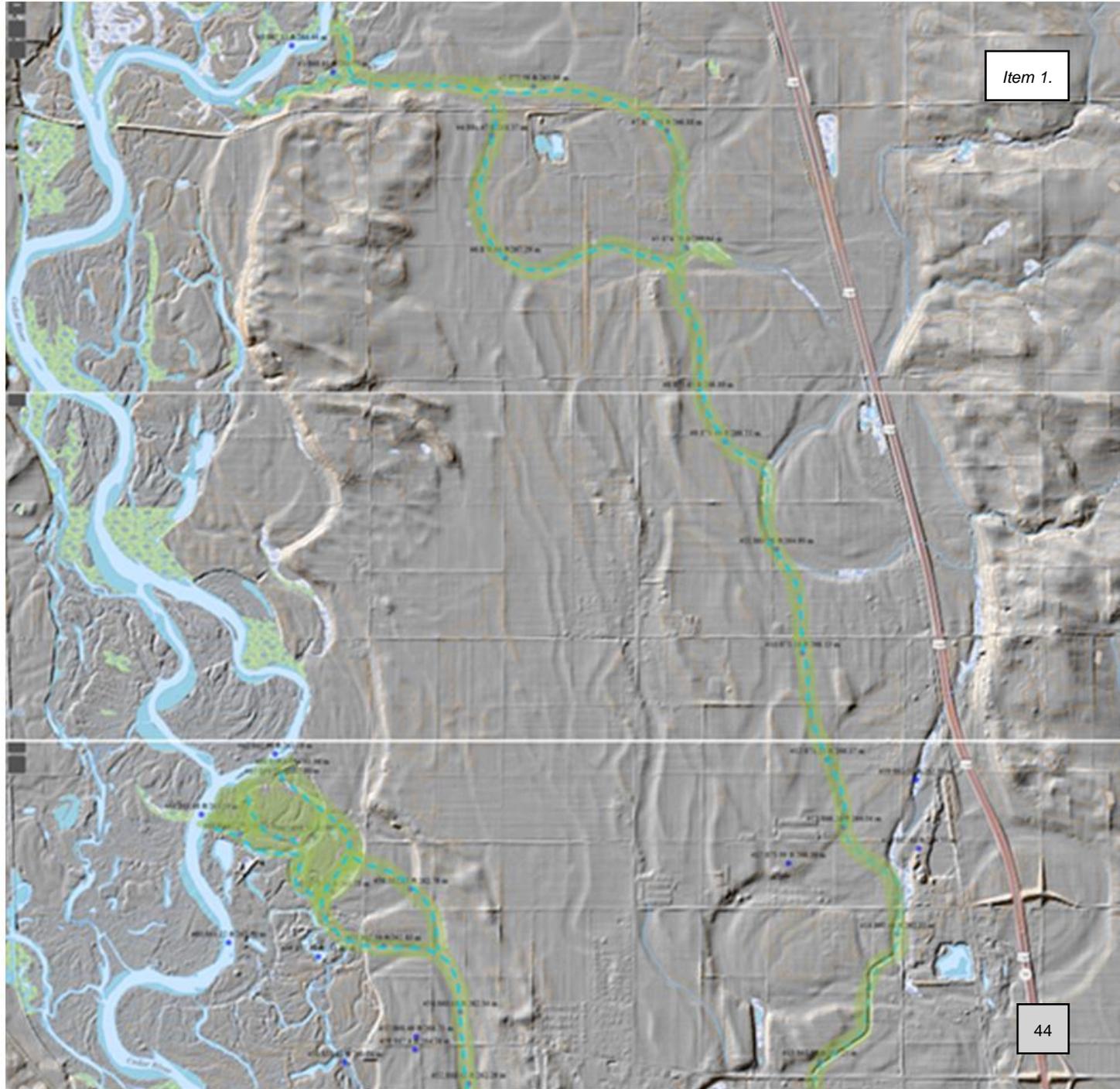
Study Process. The process for FPMS assistance begins after a state, regional, local government, or Native American Indian tribe requests Corps of Engineers assistance under the program. When funding is available, the Corps of Engineers will work with the requesting organization to develop a scope of work and assemble the appropriate study team for the effort being requested. At their option, the requesting organization may provide voluntary contributions toward the requested services to expand the scope or accelerate the provision of those services. All requestors are requested to furnish available field survey data, maps, historical flood information, etc., to help reduce the cost of services.

Study Cost	Final Design/ Construction Costs
FPMS assistance is 100 percent federally funded. Other Federal agencies and private parties must pay 100 percent of the costs of all FPMS efforts.	The program does not give the Corps the authority to complete detailed final designs or construction activities.

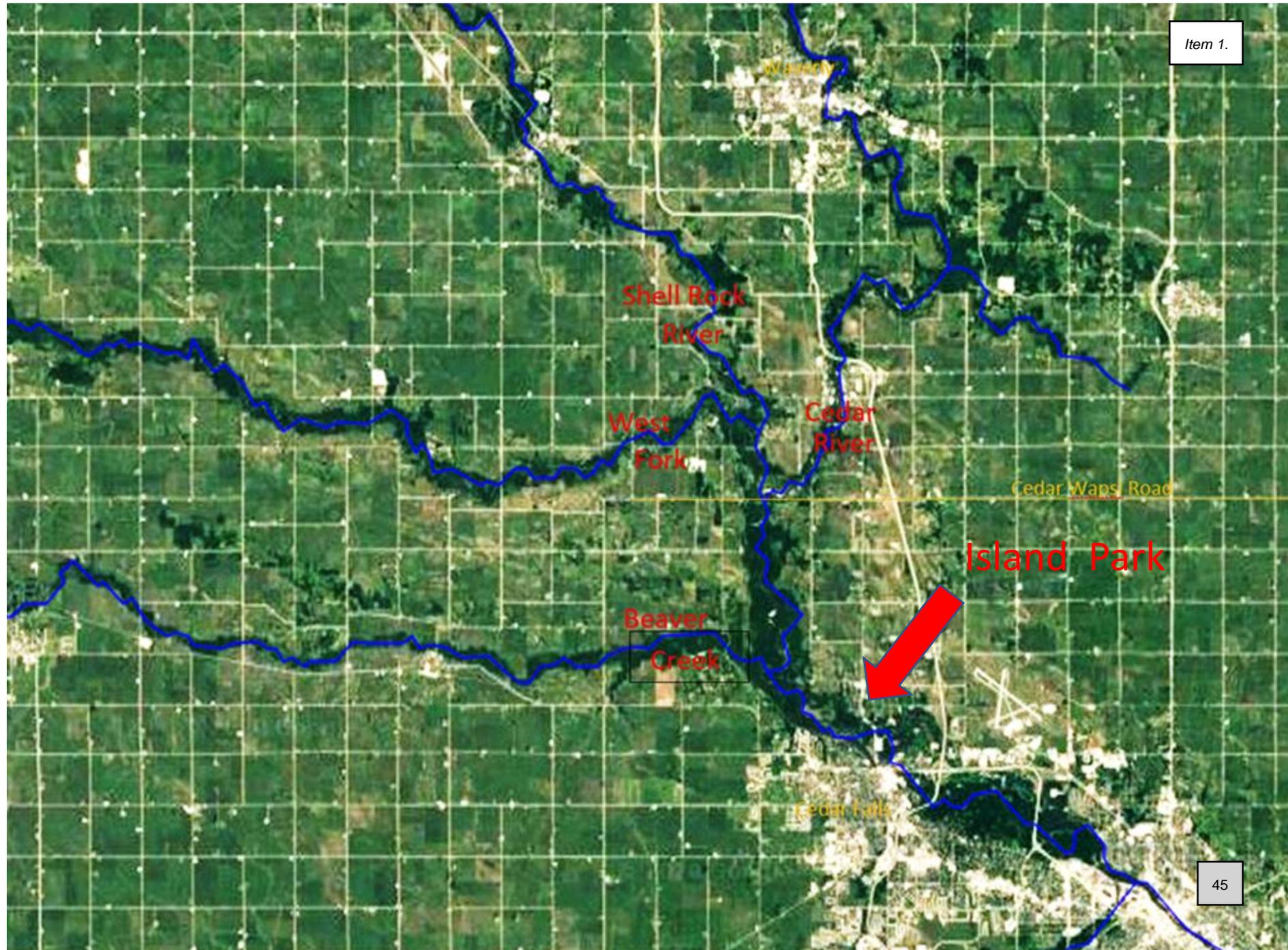
How to Request Assistance. Requests for assistance should be in the form of a letter that includes the location and nature of the problem to be investigated. The request should be submitted by a state, local government agency, or eligible Native American Indian tribe to Mr. John Kennelly, Chief, Planning Division, U.S. Army Corps of Engineers, New England District, 696 Virginia Road, Concord, MA 01742-2751. For more information call Brian Balukonis, Flood Risk Management Program Manager at 978-318-8643.

Additional reference materials that may be used as illustration to answer questions

Item 1.



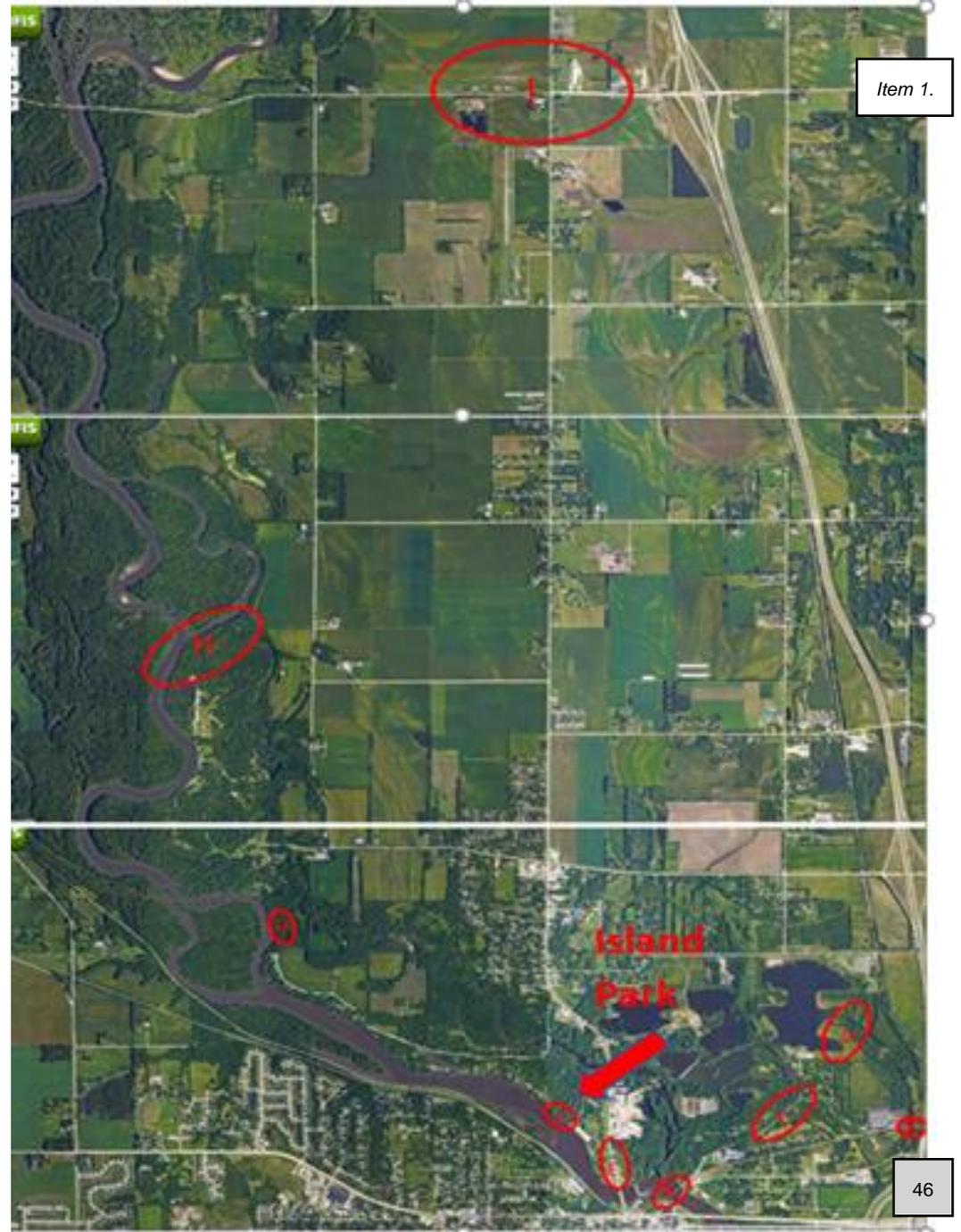
Island Park
and Cedar
Falls are at
the receiving
end of four
major
watersheds



obstructions throughout the watershed north of Cedar Falls.

Obstructions that could be turned into a Triple Win Solution for not just Cedar Falls but in cleaner water from here to the gulf of Mexico.

The cut off dam at Island Park is just one of these obstructions.

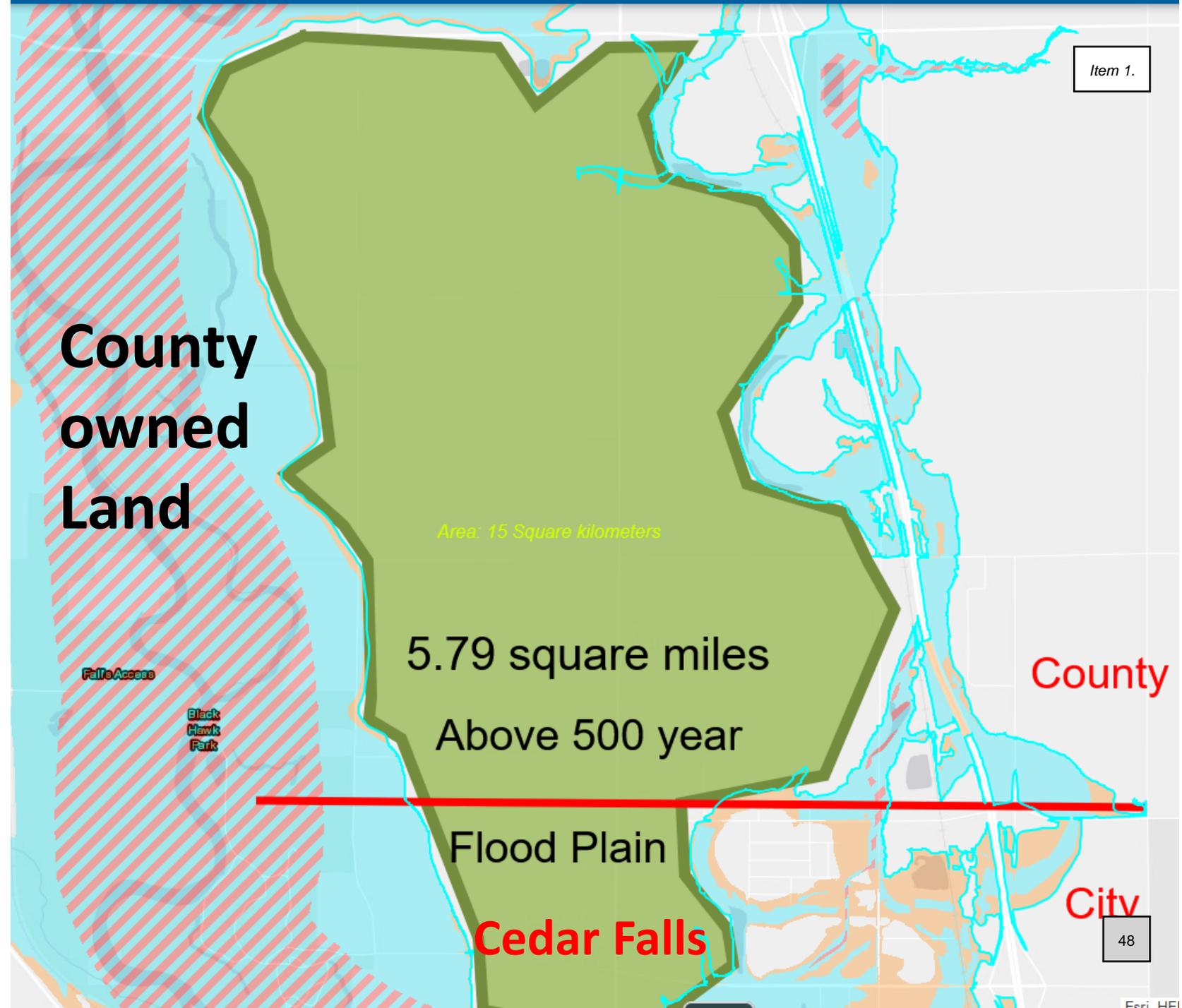


North of Cedar Falls FEMA's 500 year flood map shows the river taking two separate channels.



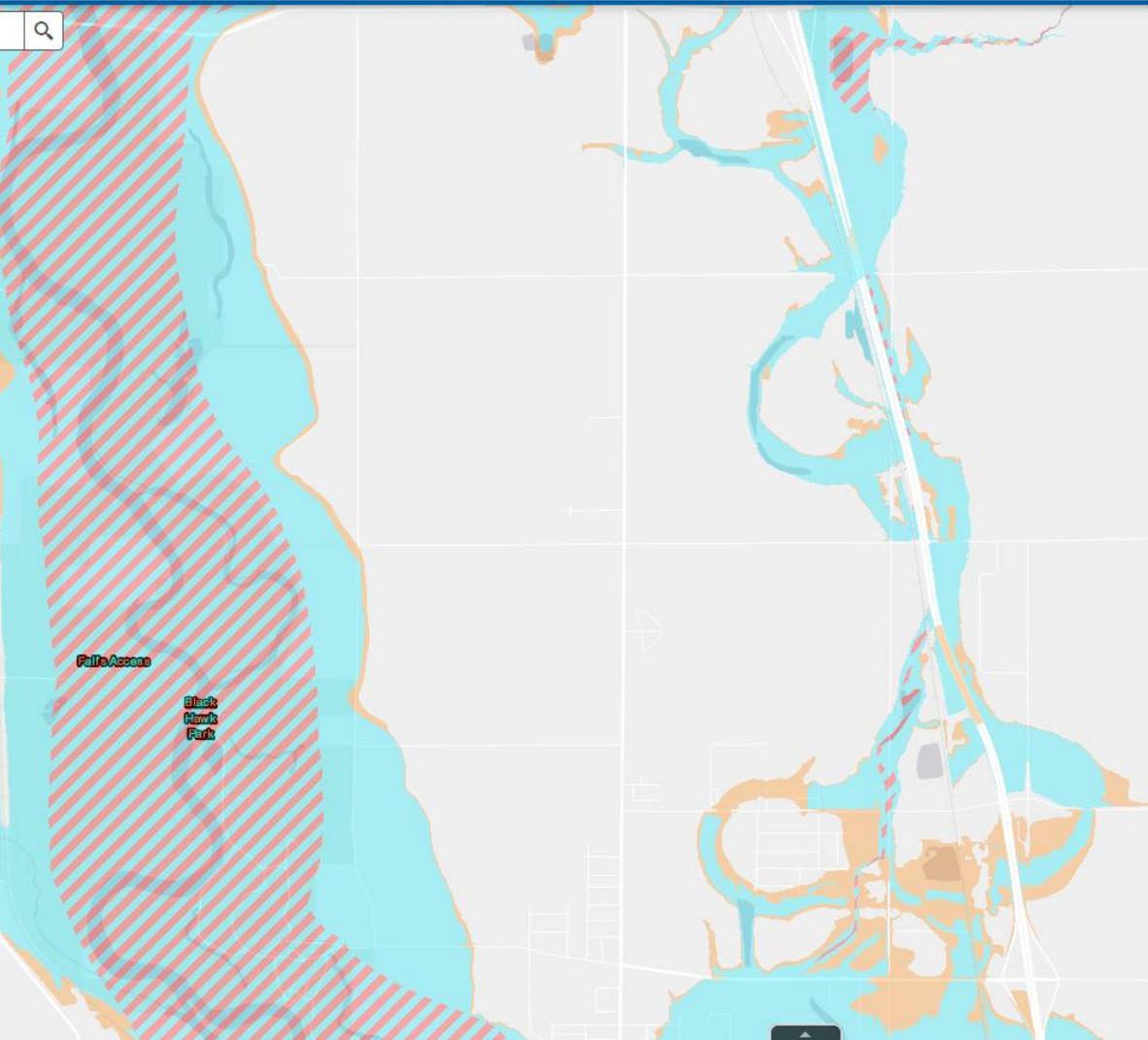
A Major part of the flood plain watershed is on county owned land to the North.

Cedar falls is at the flood water receiving end.



FEMA 500 year flood map North of Cedar falls plain

About 6 square miles are above flood plain



“Before determining a land use plan, a comprehensive plan should consider how to preserve natural resources and work with, rather than against, natural systems. A town’s environmental structure helps define a sense of place and has a tremendous impact on quality of life”.
P 45 Cedar Falls
Comprehensive plan

