

CAHOKIA HEIGHTS & EAST ST. LOUIS (FPMS) SPONSOR COORDINATION

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USACE- MVS

Date: 19 April 2023



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Purpose: USACE brief hydraulic modeling results, identify mitigation measures, discuss options with city officials and interagency partners.

Agenda:

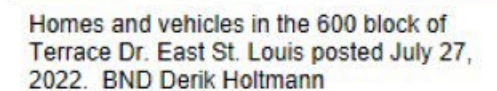
- Review project schedule and scope
- Problems and Objectives
- Measures and Alternatives
- Hydrology and Hydraulics (H&H) existing conditions model
- H&H alternative modeling results
- Questions & Discussion
- Public Engagement
- Future Opportunities
- Questions & Discussion



Flood Hazard Analysis Study Area



- Floodplain Management Services – Special Study
 - 100% Federal Cost
 - Requested by City of Cahokia Heights January 2022
 - Supported by City of East St. Louis May 2022
- Requests for assistance under the FPMS program must be submitted by an appropriate representative of a non-Federal partner to the local USACE District and include the location and nature of the problem to be investigated.*
- Federal Funds Received June 2022
 - Initiated in Mid-July 2022
 - 13 Month Schedule
 - Final Report with Recommendations for Local Government Implementation.



Flood Hazard Analysis

Project Schedule and Future Engagements

- **February 2023** Completed Modeling as well as Measures and Alternative development
- **May 2023:** Finalize Recommendations and Public Coordination
- **August 2023:** Report Finalized and posted to public website





IDNR-OWR Storm Sewer Survey

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IDNR Storm Sewer Survey Completed Fall 2022

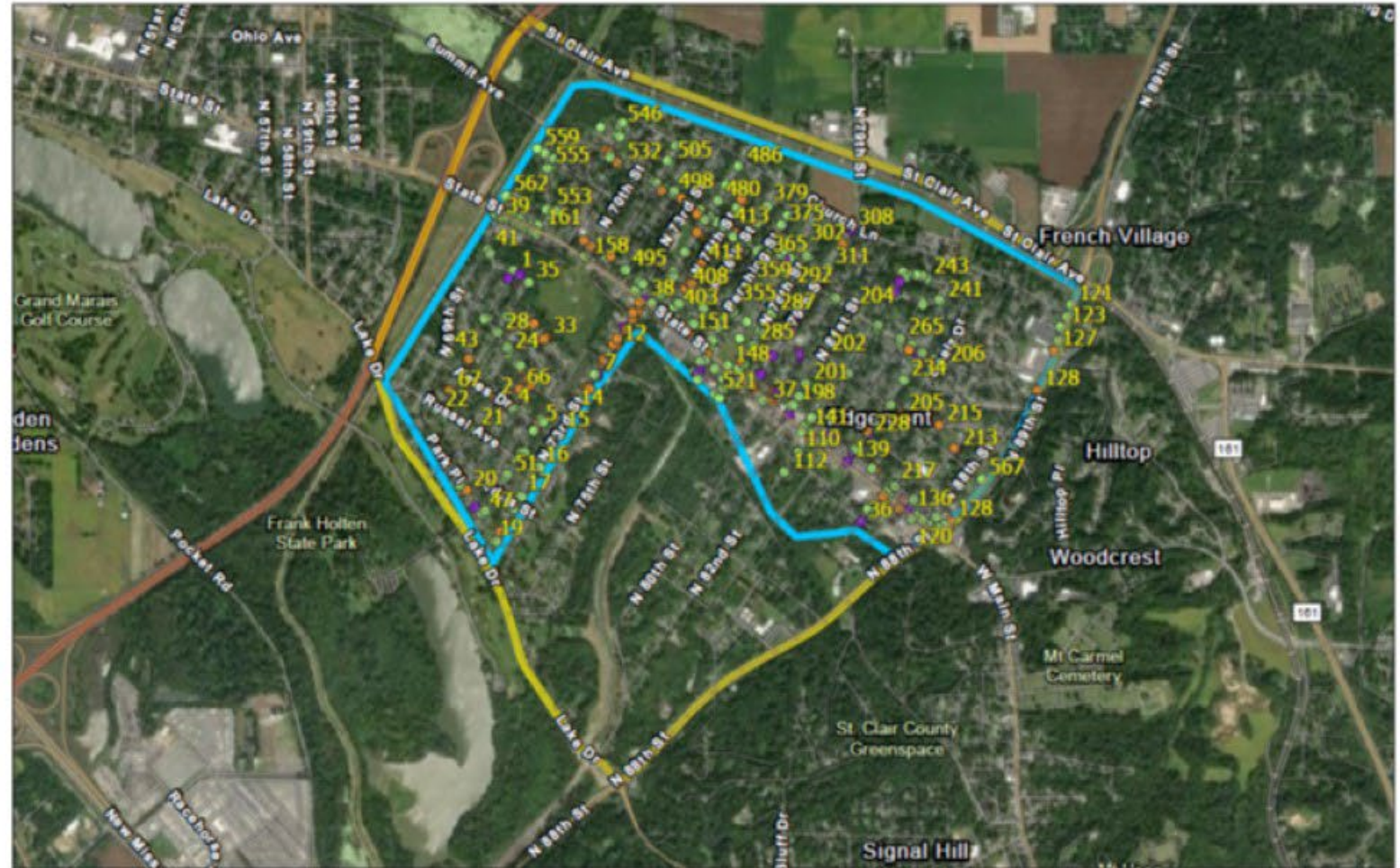
562 Locations Surveyed with Condition Assessment

Some storm sewers are completely packed full of dirt and debris, making it impossible to determine pipe sizes and directions

OWR survey crews uncovered structures that otherwise would not have been identified

Property owners were very willing to point out inlets and manholes that were buried in their yards and ditches

East St. Louis Storm Sewer Survey Status October 20, 2022



10/21/2022

Storm Sewer Structure Condition

Good

Poor

Unknown

Damaged

ESTL Sewer Survey Boundary

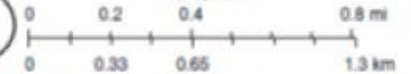
ESTL Project Boundary

World Imagery

Low Resolution 15m Imagery



1:30,785



Metro East Park and Rec District, Missouri Dept. of Conservation, Missouri DNR, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc. MET/NASA,

OWR GIS



Problems and Objectives



Problem	Objectives
Water is currently unable to drain effectively from the study area following a precipitation event, resulting in flooding of roads and structures	Reduce the risk of damages from floods to the Cahokia Heights and East St. Louis study area.
- Parkside Pump Station not operating at full capacity	- Improve drainage to areas that do not drain
- Standing water remains in ditches and becomes more prevalent over time due to continued sediment deposition	- Improve functionality and effectiveness of Parkside Pump Station
- Undersized culverts and storm sewer network	- Improve maintenance to drainage network
- Notch in levee by Parkside Pump Station	
- Detention Basin sedimented in and no current connection to pump station	



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Edgemont Area

Pump station not operating
to full capacity

Undersized drain lines

Undersized drain lines

No inlets and pipe network

Homes built
in low lying
areas

Problems:

- Parkside 2 main lines- currently 3 ft (should be 5-6 ft)
- Undrained areas- no inlets and conduit to pipe network (blank area on survey / H&H map- nothing existing to survey)
- Homes built in low lying areas (flooding can be alleviated but may not be gotten rid of)
- Blocked lines – filled with sediment or could be collapsed (most had inverse slope pipes – likely through settlement or low slope and settlement)
- Pump station not operating to full capacity- will be undersized if all drain lines increase in size.

Edgemont Area



Measures	Limited Flood Reduction	Intermediate Flood Reduction	Maximum Flood Damage Reduction	Low Impact Design (LID) – unable to model at this scale
Replacing undersized main lines to 5-6 ft (Marybelle and Eureka)		X	X	
Adding inlets and conduit to main pipe network (for undrained areas)			X	
Cleanout drain line blockages	X		X	
Closing the gap in the Harding Ditch Levee by Parkside pump station			X	
Increase pumping capacity of pump station at Parkside		X	X	
Interception measures – intercept the water before it enters the network. (e.g. rain gardens, rain barrels, permeable pavement, etc)				Interception measures would retain water rather than move the water off. Could be added as supplemental to other structural measures. Best professional judgement indicated should not be used as a standalone measure. Outside the scope of the study to modeled for effectiveness at this scale or develop cost.





Insufficient and blocked inlets- may be backing up from detention basin

Detention basin filled in and does not appear to connect to pump station

Insufficient and blocked inlets

Water does not drain to ditch effectively

Outlets are in disrepair and not allowing sufficient drainage to canal one

Ditches filled in – no inlets and storm sewer pipe network

Parkside Area

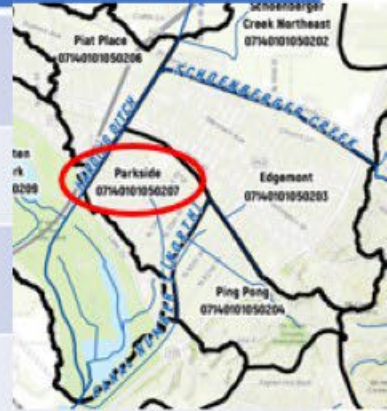
Ping Pong Area



Parkside Area



Measures	Limited Flood Reduction	Intermediate Flood Reduction	Maximum Flood Damage Reduction	Low Impact Design (LID) – unable to model at this scale
Dig out detention basin and connect to pump station		X	X	
Add storm sewer inlets at low points and pipes to canals			X	
Increase size of the storm sewer drain lines with larger pipes			X	
Clean out and repair existing storm sewer drainage lines	X	X	X	
Increase pumping capacity of pump station at Parkside		X	X	
Closing the gap in the Harding Ditch Levee by Parkside pump station			X	
Clean out existing drainage ditches	X	X	X	
Interception measures – intercept the water before it enters the network. (e.g. rain gardens, rain barrels, permeable pavement, etc)				Interception measures would retain water rather than move the water off. Could be added as supplemental to other structural measures. Best professional judgement indicated should not be used as a standalone measure. Outside the scope of the study to modeled for effectiveness at this scale or develop cost.

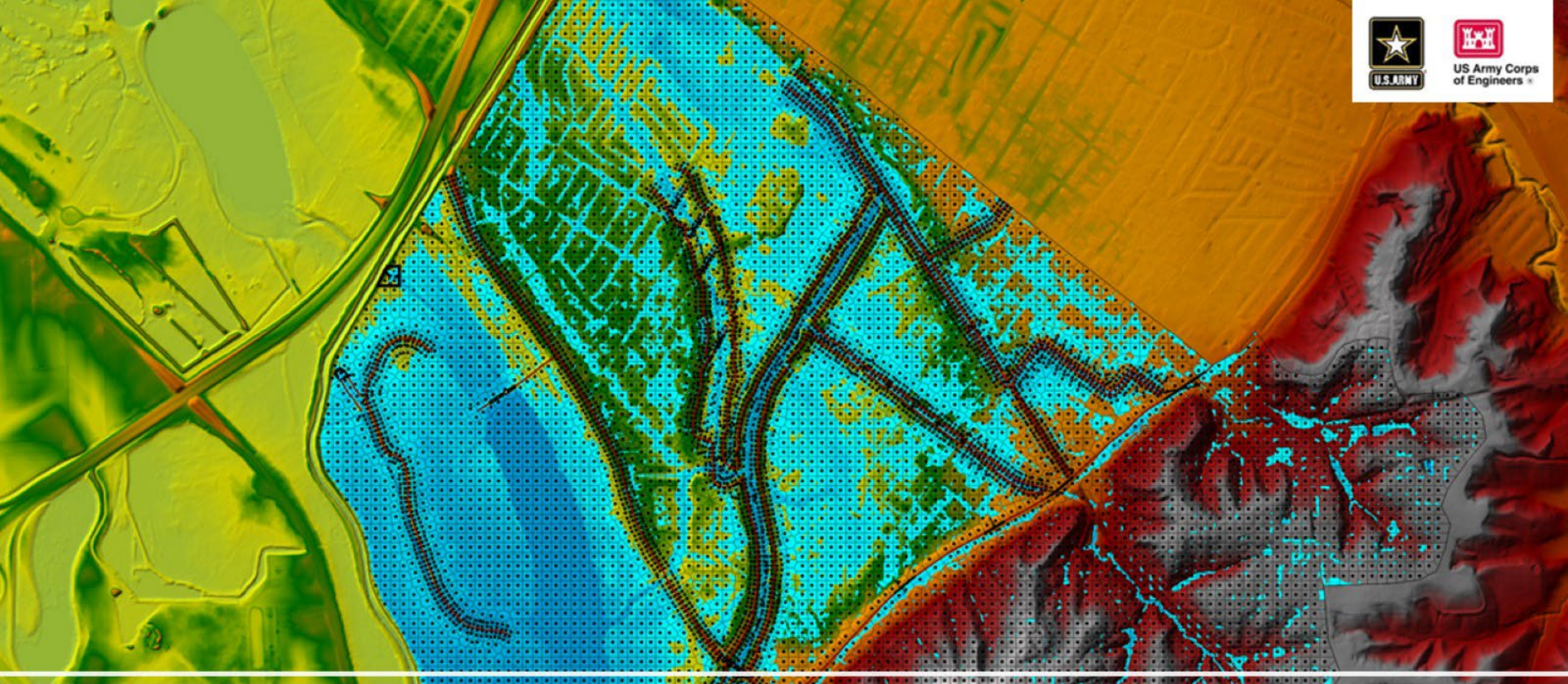


Ping Pong Area

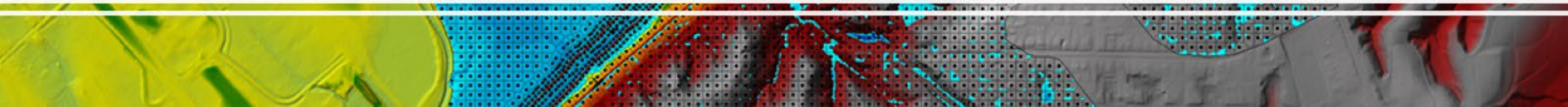


Measures	Limited Flood Reduction	Intermediate Flood Reduction	Maximum Flood Damage Reduction	Low Impact Design (LID)
Clean out existing main drainage ditches (Edgemont and Steinberg ditches) draining to Canal One	X	X	X	
Install lift stations and add new pipe network (must be done together)			X	
Clean out and repair local drainage ditches and culverts East of Canal One (by side of road)	X	X		
Increase size of culverts on the SE side draining area to Canal One		X	X	
Interception measures – intercept the water before it enters the network. (e.g. rain gardens, rain barrels, permeable pavement, etc)				Interception measures would retain water rather than move the water off. Could be added as supplemental to other structural measures. Best professional judgement indicated should not be used as a standalone measure. Outside the scope of the study to modeled for effectiveness at this scale or develop cost.





H&H Analysis





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Questions & Discussion



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Public Engagement

Date: Mid- May

Location: Clyde C. Jordan Senior Center

- Reservation Contact?
- Fees to use this facility?

Invitees:

- Everyone within study area?
- Community leaders
- Congressional staff

Outreach recommendations for reaching invitees

- Notice on local city websites
- Other?



Future FPMS Support



Future FPMS Study: Piat Place Watershed

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Prairie DuPont Piat Place Areas

Piat Place Field Maps Storm Sewer Survey Functional Level

- Good
- Poor
- Damaged
- Unknown

Piat Place IDNR Flood Survey Data



Piat Place Storm Sewer Survey Boundary



Piat Place Storm Sewer Survey Boundary





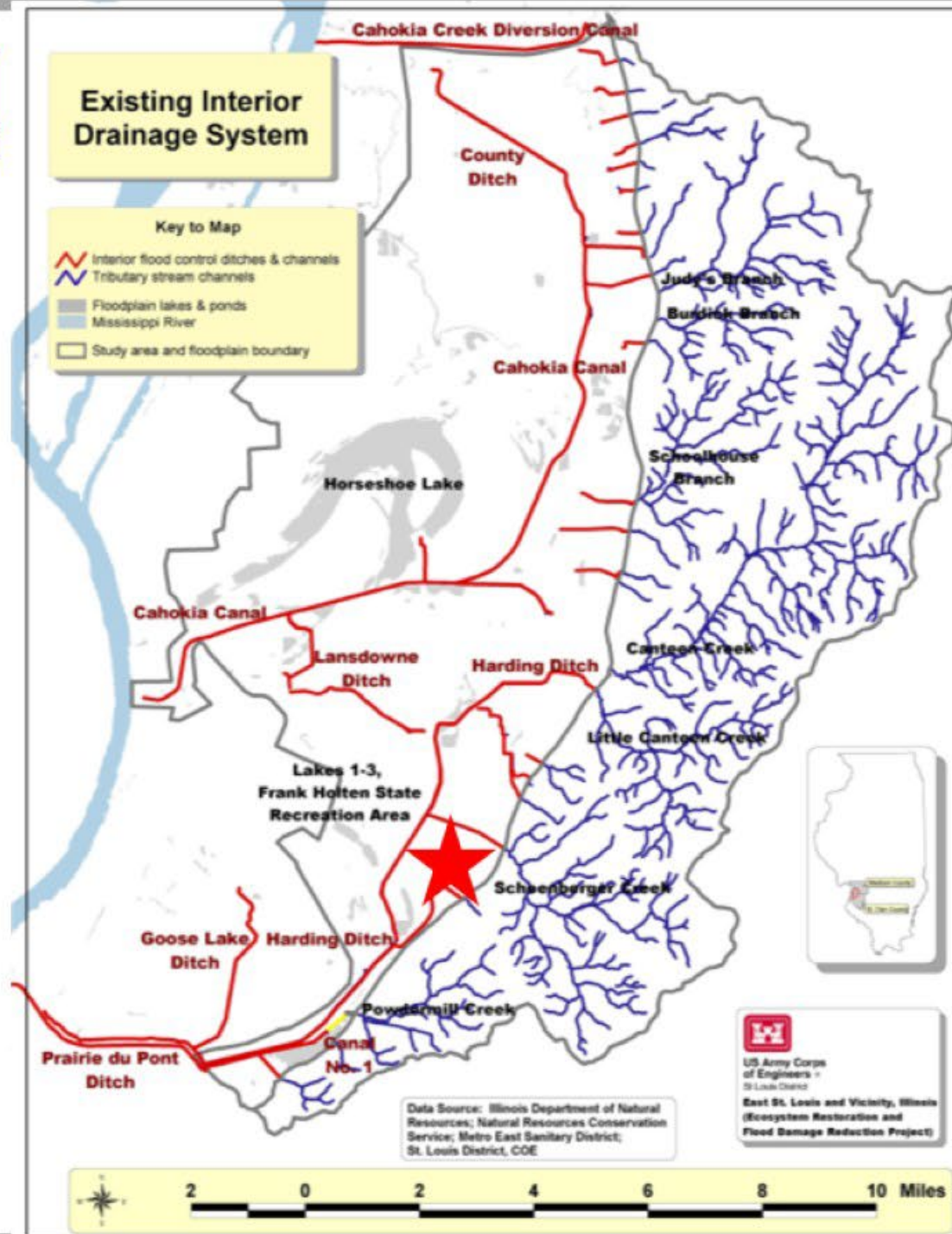
East St. Louis & Vicinity Comprehensive Ecosystem Restoration & Flood Damage Reduction Plan



Existing Interior Drainage System

Key to Map

- Interior flood control ditches & channels
- Tributary stream channels
- Floodplain lakes & ponds
- Mississippi River
- Study area and floodplain boundary



Data Source: Illinois Department of Natural Resources; Natural Resources Conservation Service; Metro East Sanitary District; St. Louis District, COE



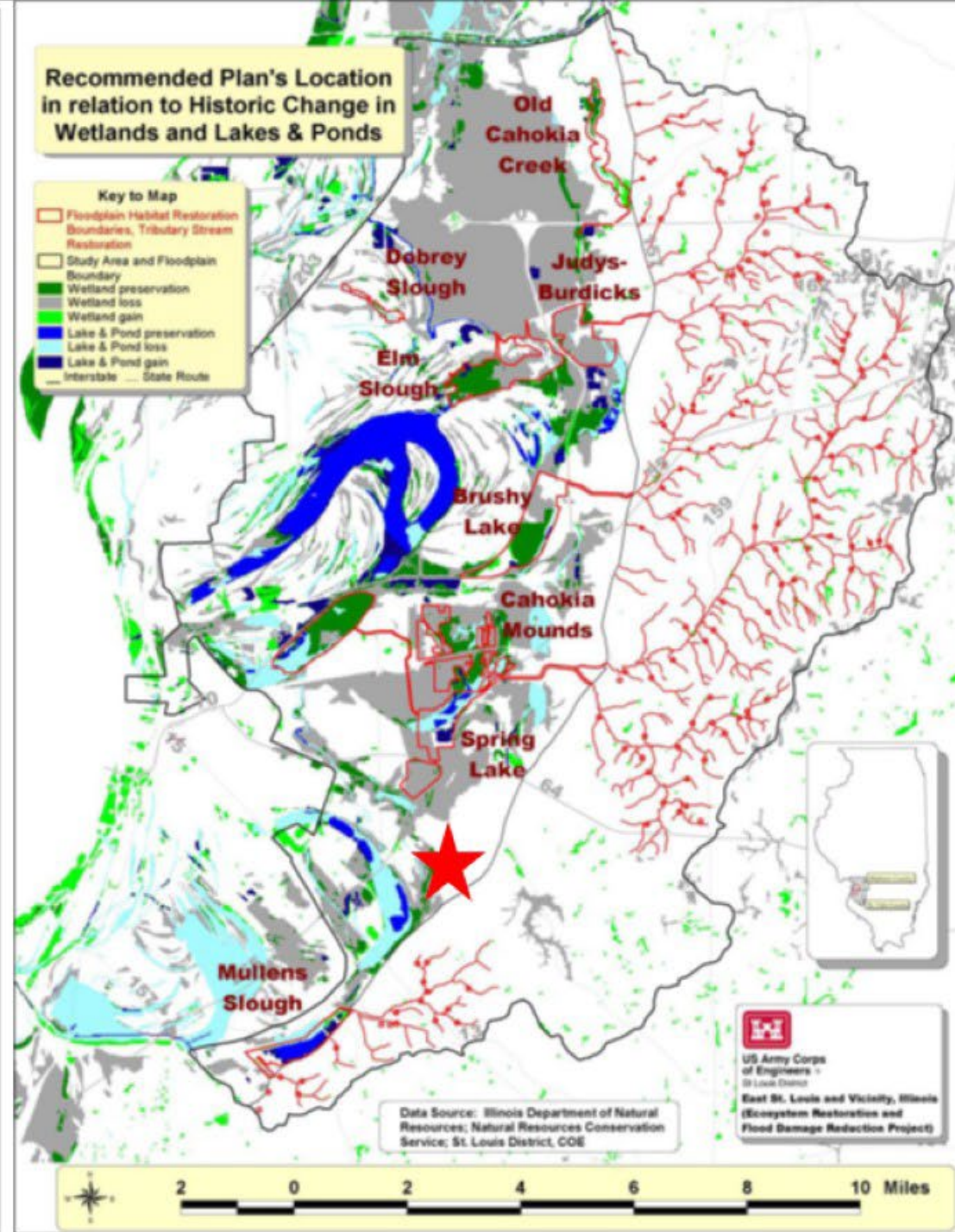
US Army Corps of Engineers
St. Louis District
East St. Louis and Vicinity, Illinois
(Ecosystem Restoration and Flood Damage Reduction Project)



Recommended Plan's Location in relation to Historic Change in Wetlands and Lakes & Ponds

Key to Map

- Floodplain Habitat Restoration Boundaries, Tributary Stream Restoration
- Study Area and Floodplain Boundary
- Wetland preservation
- Wetland loss
- Wetland gain
- Lake & Pond preservation
- Lake & Pond loss
- Lake & Pond gain
- Interstate
- State Route



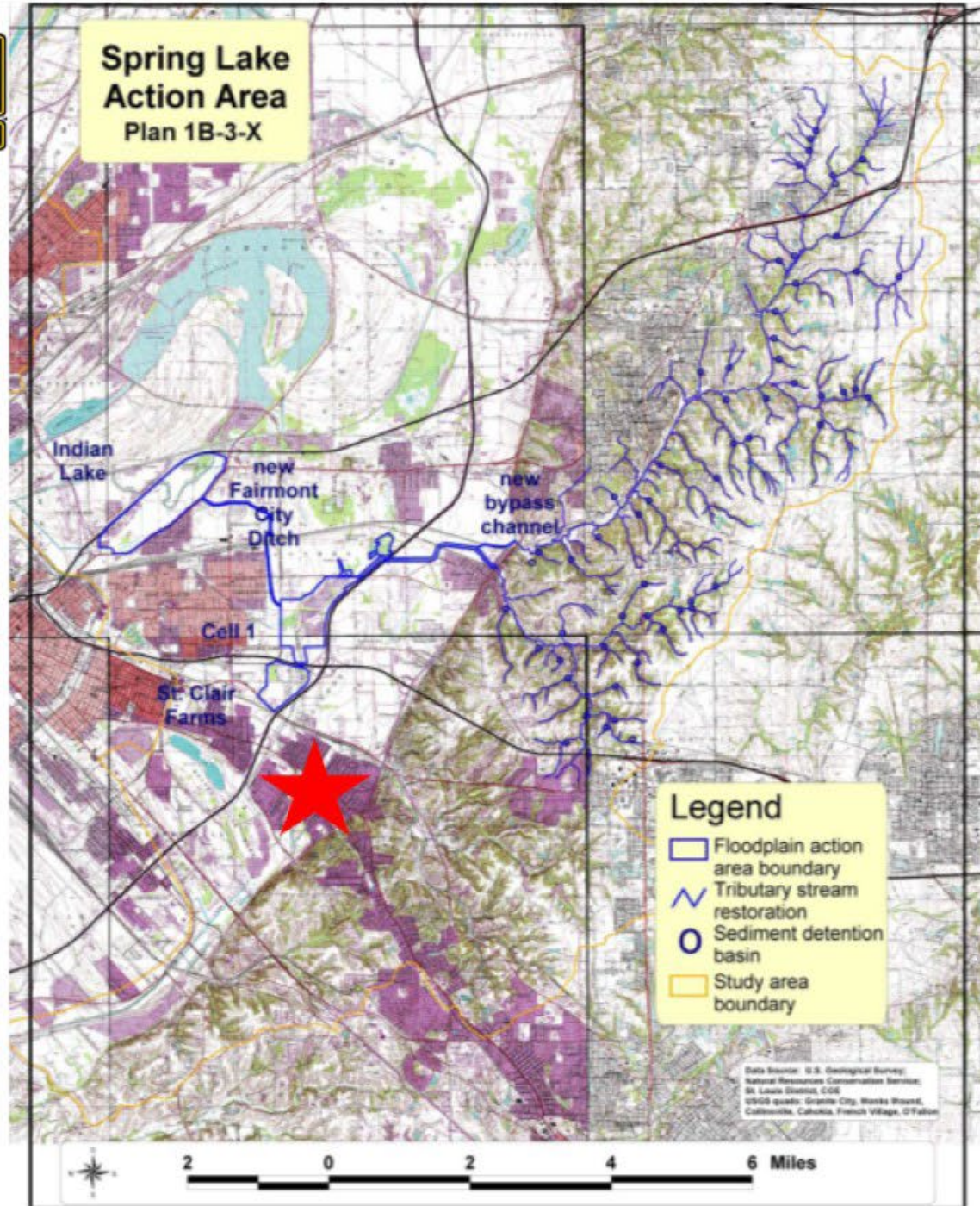
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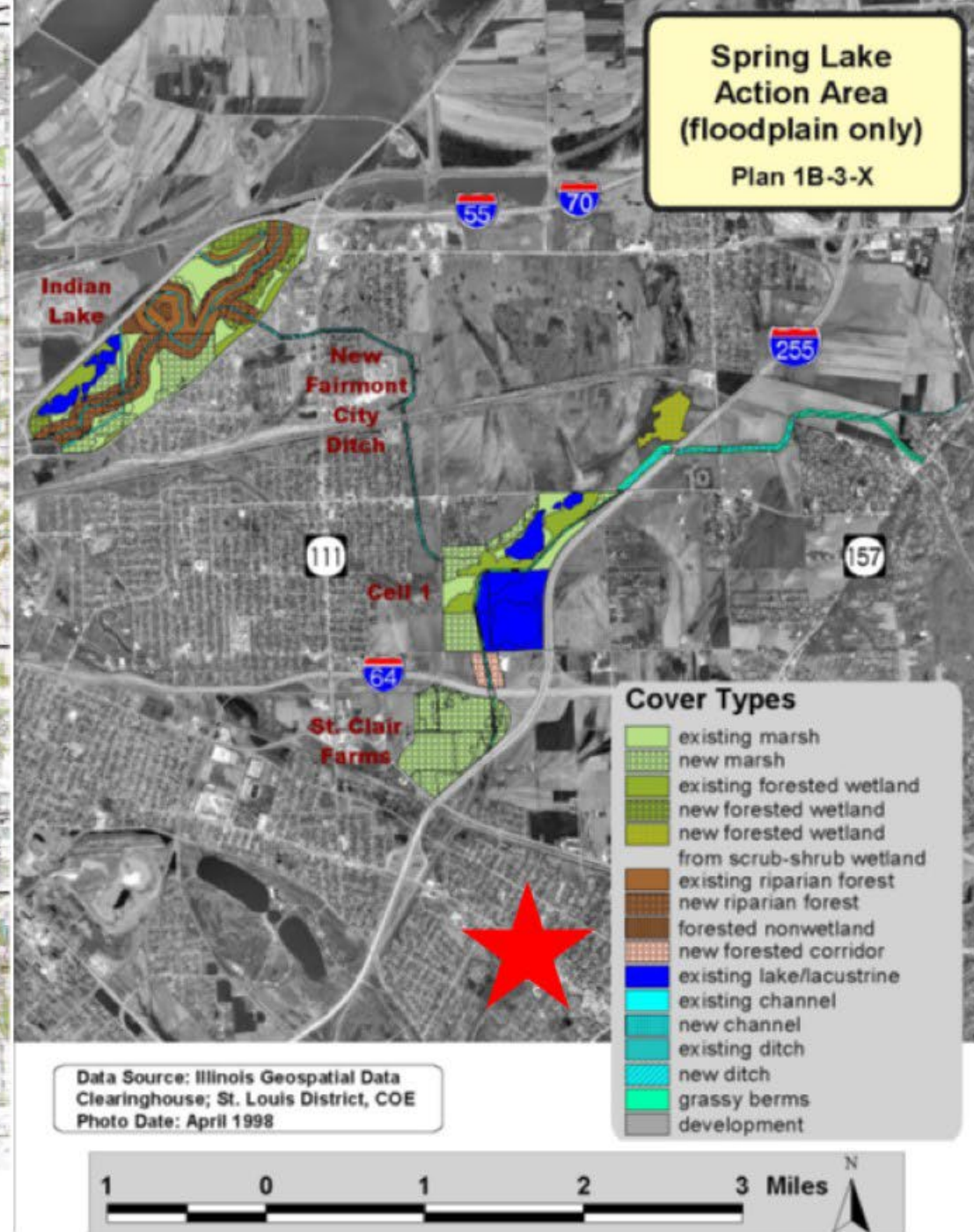
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Spring Lake Action Area Plan 1B-3-X



Spring Lake Action Area (floodplain only) Plan 1B-3-X





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Questions & Discussion