

... City of Ladue's stormwater management program

2016 Annual Conference
**Illinois Association for
Floodplain and Stormwater Management Conference**
March 9th, 2016



... who are we?

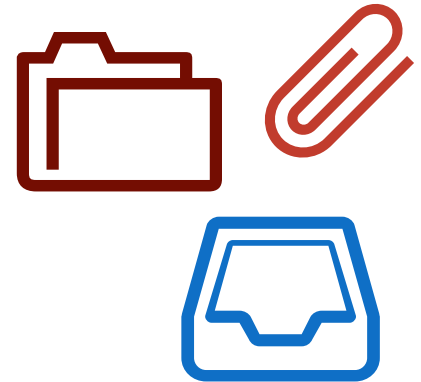


Today's
Presenters



... presentation outline

1. City of Ladue Description
2. Quick Review of Program
3. What did we learn from Phase I?
 - a. Data Gathering
 - b. Preliminary Assessment
 - c. Public Engagement
 - d. Problem Prioritization
4. What can / should we do next?



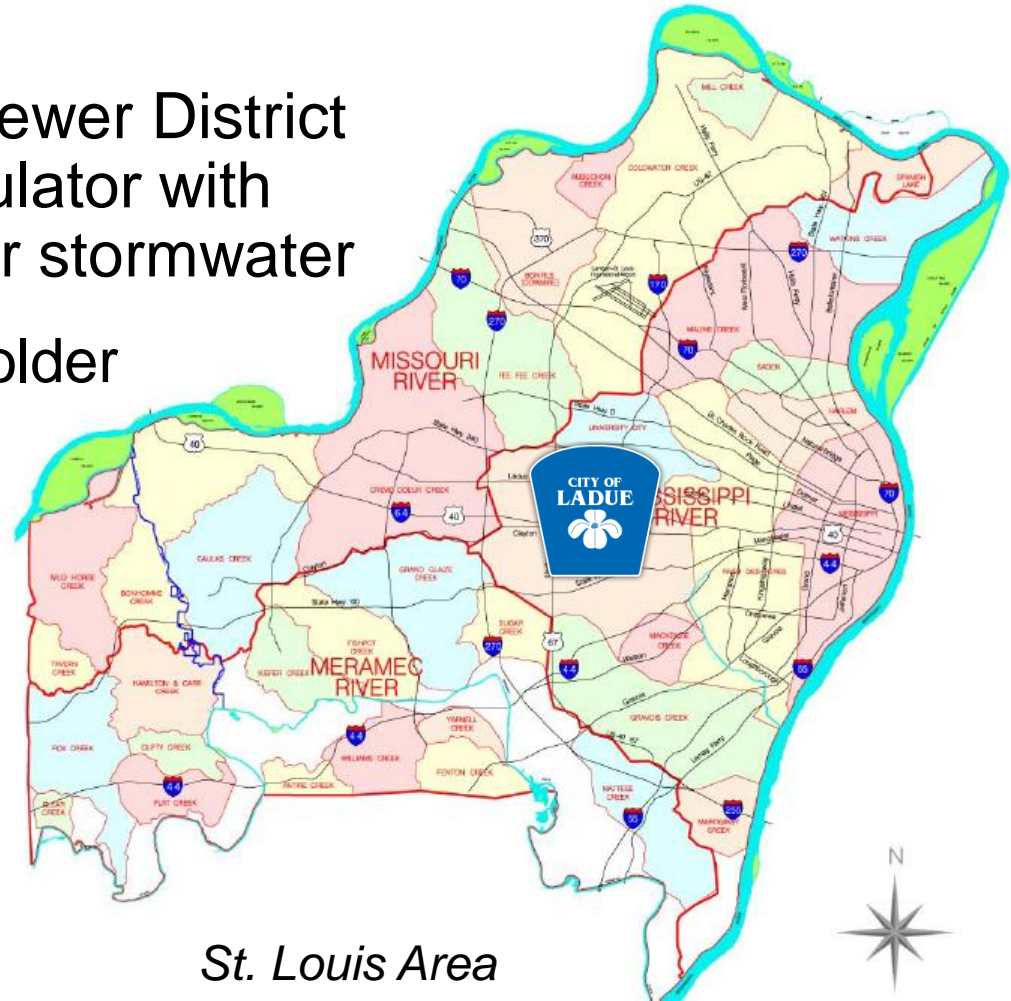
... City of Ladue, MO

- Located in St. Louis County
- Highest median income City in Missouri
- Population of ~10K
- Legacy of fine estates and large homes
- Fully developed
 - High levels of in-fill construction, aka “McMansions”

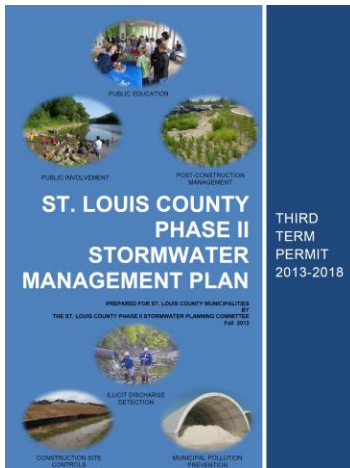


... stormwater management in St. Louis

- Metropolitan St. Louis Sewer District (MSD) is “umbrella” regulator with almost **NO FUNDING** for stormwater
 - Primary MS4 Permit Holder
- 59 Co-Permittees



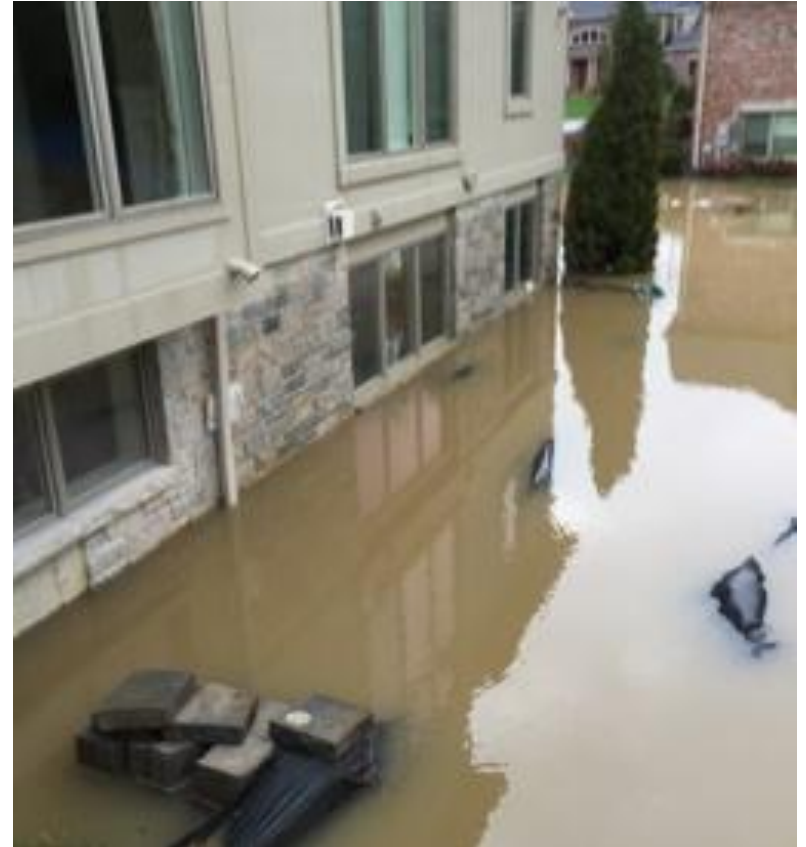
St. Louis Area Watersheds



... what happened in December 2015?



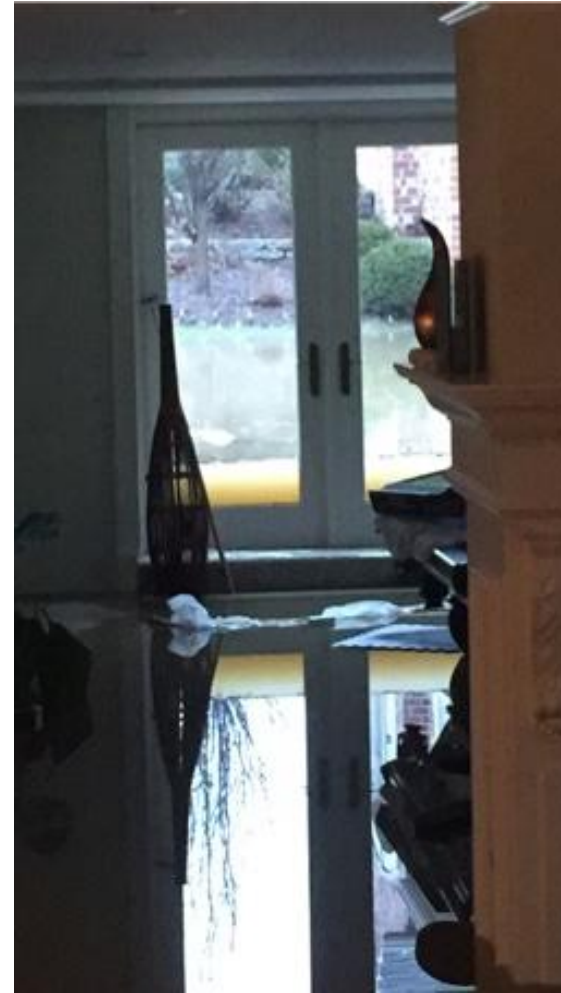
... what happened in December 2015?



... what happened in December 2015?



... what happened in December 2015?



... program purpose

Funded by a ½ cent Stormwater Sales Tax,
the goals of the Storm Water Management Program are:

Phase I

- Identify storm water infrastructure problems
- Confirm that the problems are real
- Prioritize the list of the infrastructure problems identified

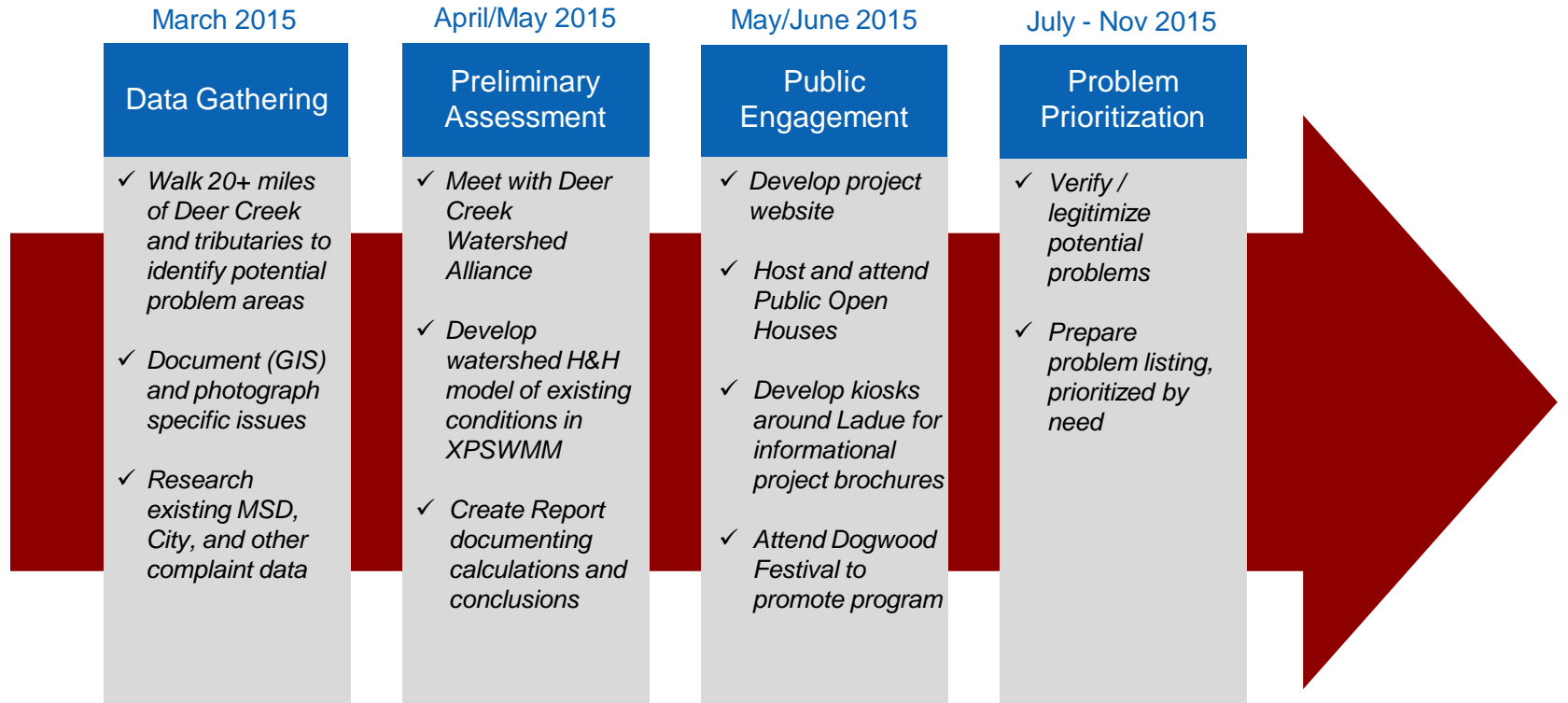
Phase II

- Develop conceptual solutions and cost estimates for a number of prioritized problems
- Re-prioritize based on conceptual designs and public input
- Prepare a Storm Water Master Plan

Phase III

- Design and construct improvements from the Storm Water Master Plan to alleviate runoff and flooding impacts.

... phase I timeline



✓ Completed Task

... data sources



Deer Creek Watershed Alliance

a project of  MISSOURI BOTANICAL GARDEN



FEMA



CITY OF
FRONTENAC




EAST-WEST GATEWAY
Council of Governments


science for a changing world

 NRCS

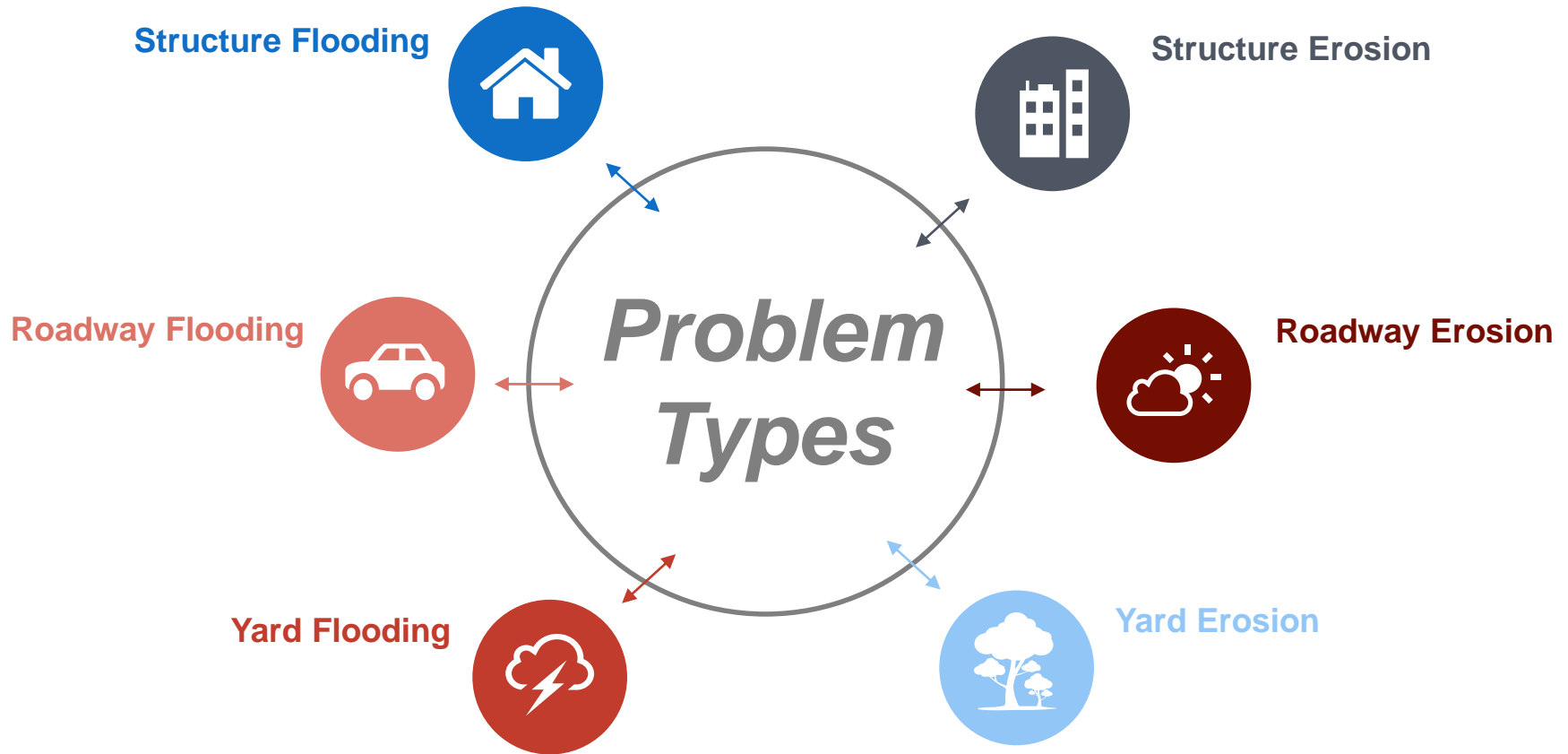


 MIDLAND
GIS Solutions

 MSDIS
Making
Missouri
Available
Digitally



... what was assessed in phase I?



This is the model that MSD uses, allowing us to seamlessly integrate our program into theirs.

... what was assessed in phase I?

Structure Flooding



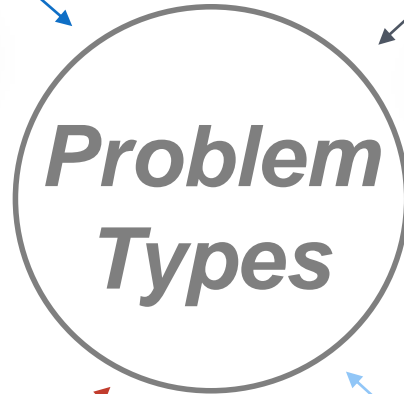
Structure Erosion



Roadway Flooding



Roadway Erosion

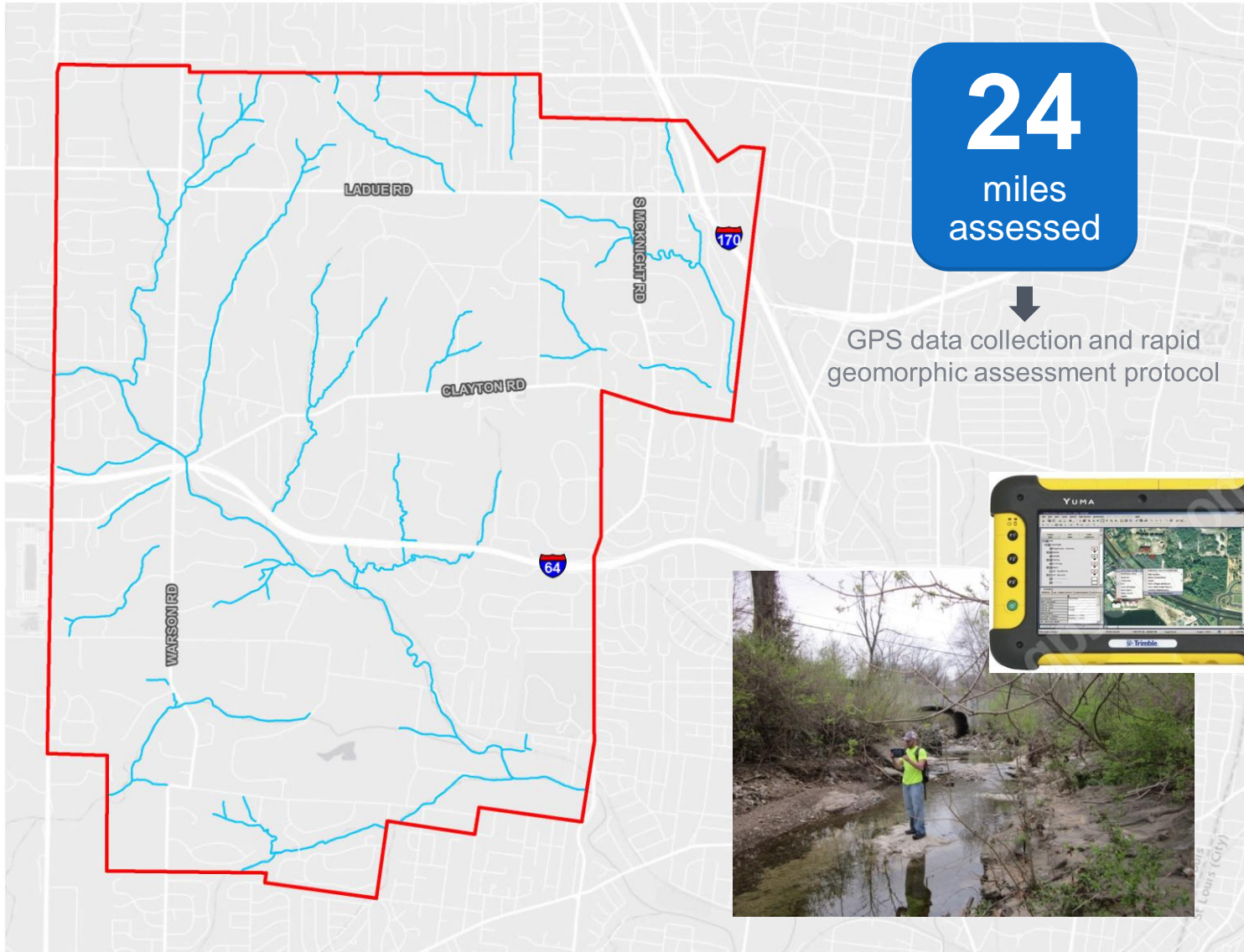


Yard Flooding

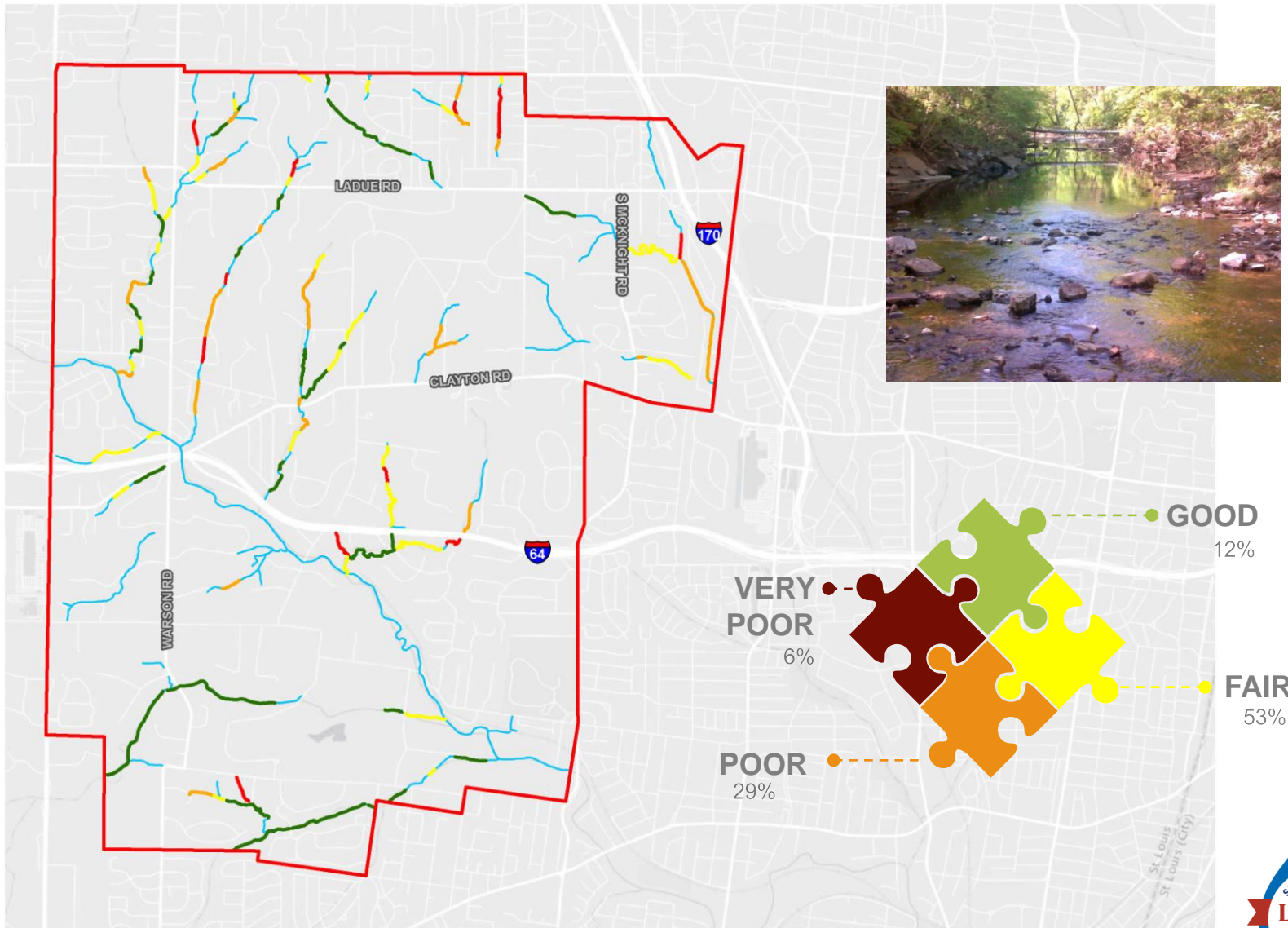


Yard Erosion

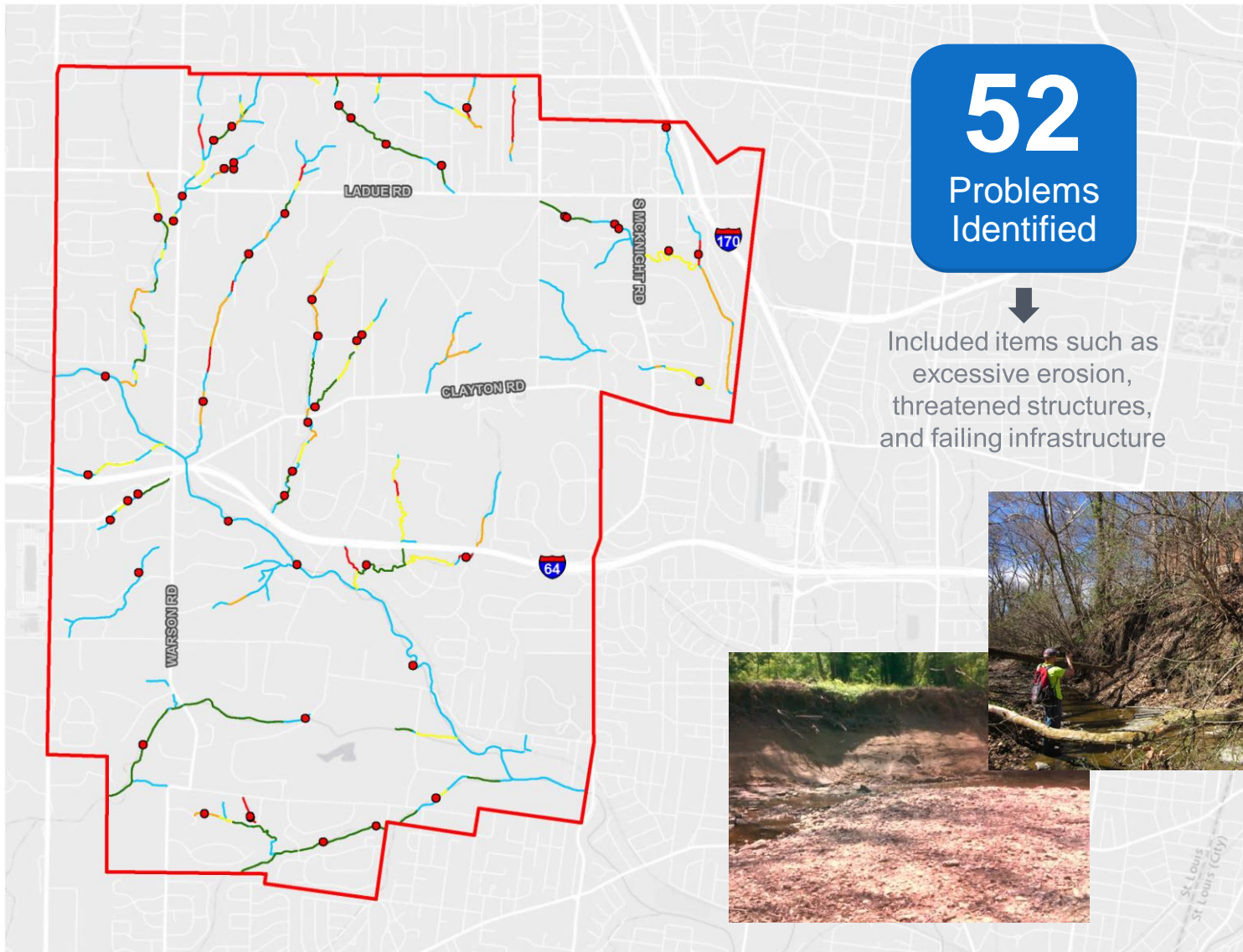
... stream assessment



... stream assessment results



... stream assessment results



52

Problems Identified



Included items such as excessive erosion, threatened structures, and failing infrastructure

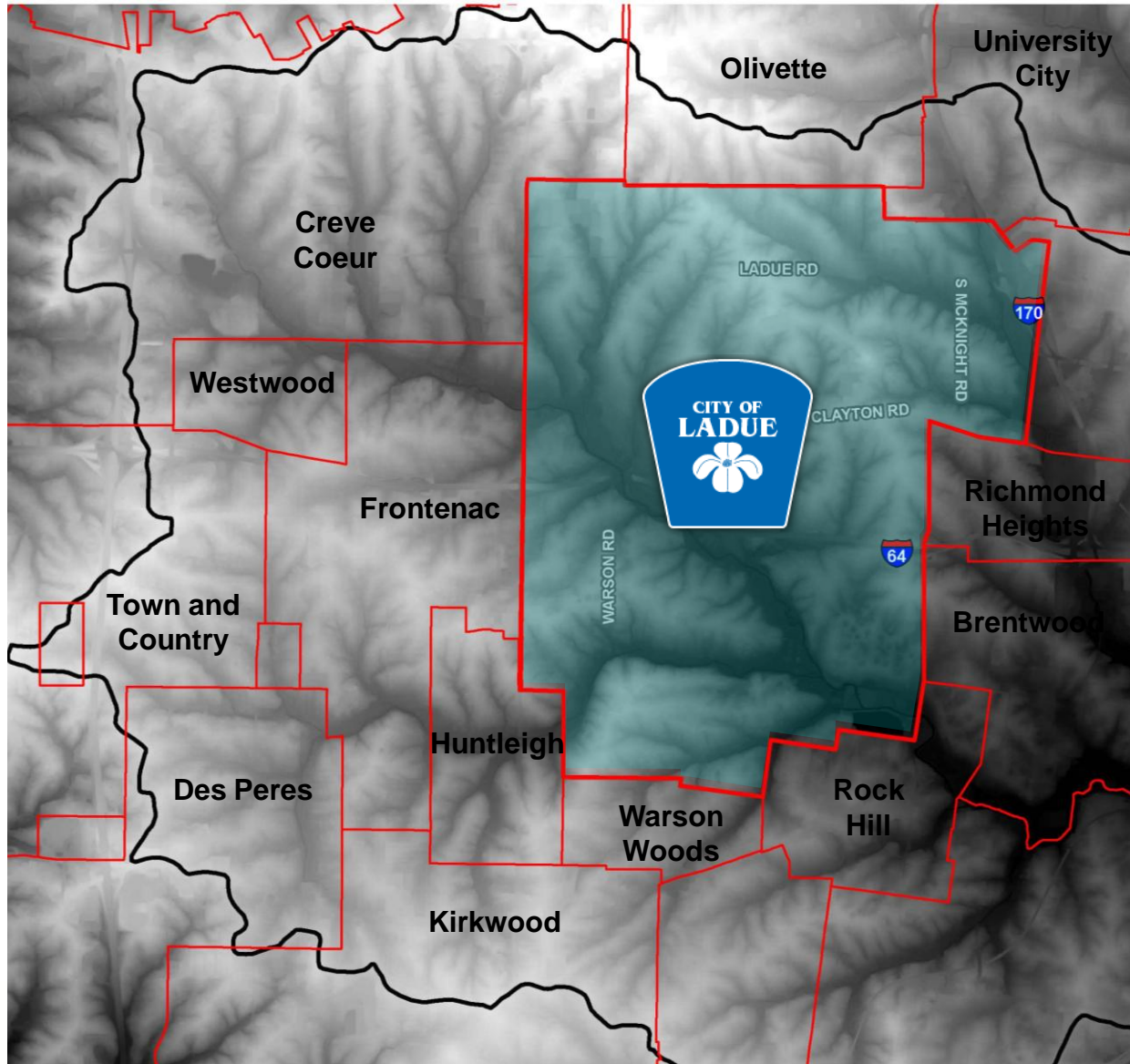


St. Louis
St. Louis (City)

... stream problem findings



... deer creek watershed limits



37
Square miles drained
by the Deer Creek
Watershed

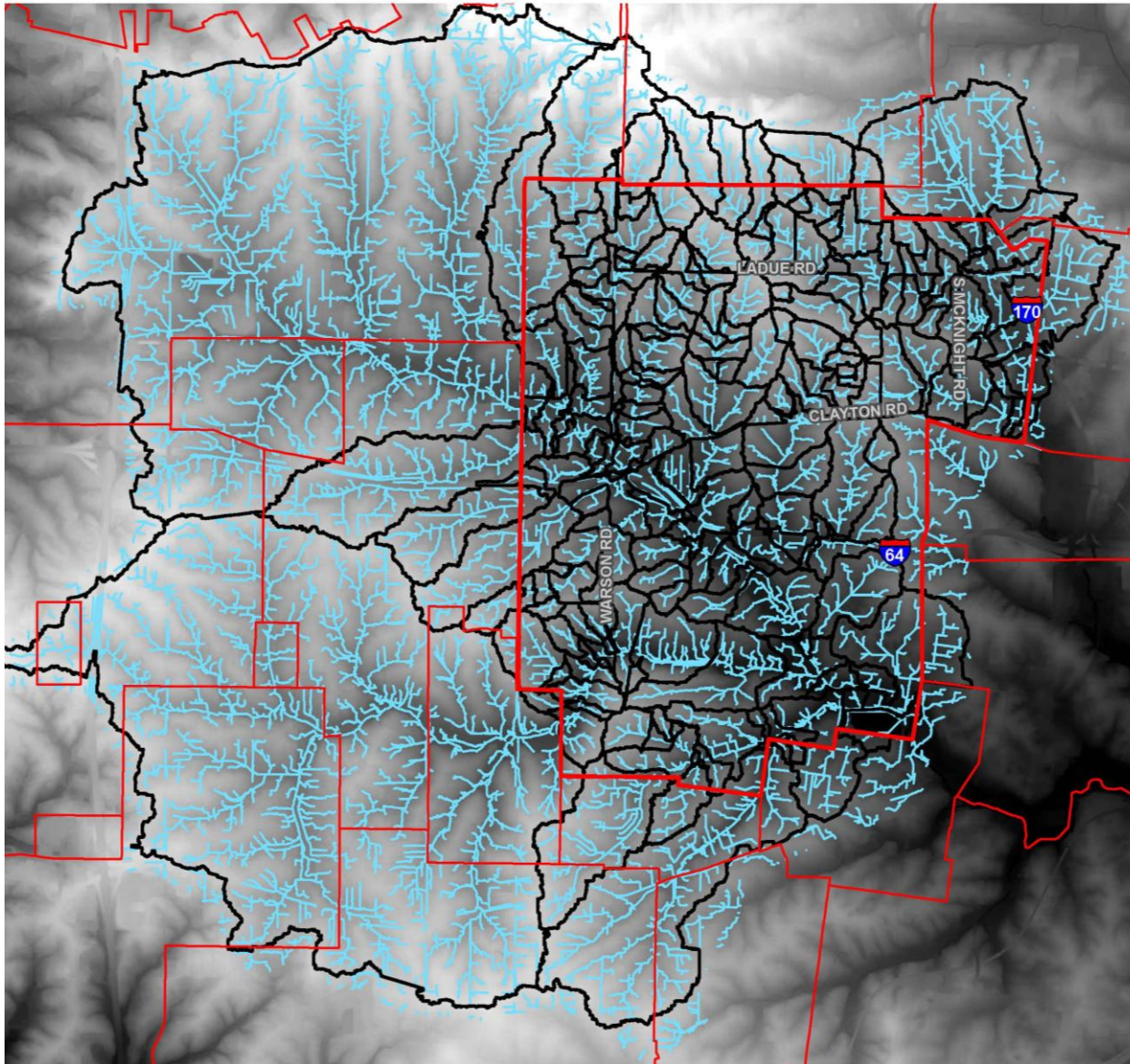


21
Number of
municipalities
included in the Deer
Creek Watershed



100%
Ladue lies completely
within the Deer Creek
Watershed

... hydrologic model



207

Number of individual drainage areas broken out of the overall watershed of the City of Ladue



25

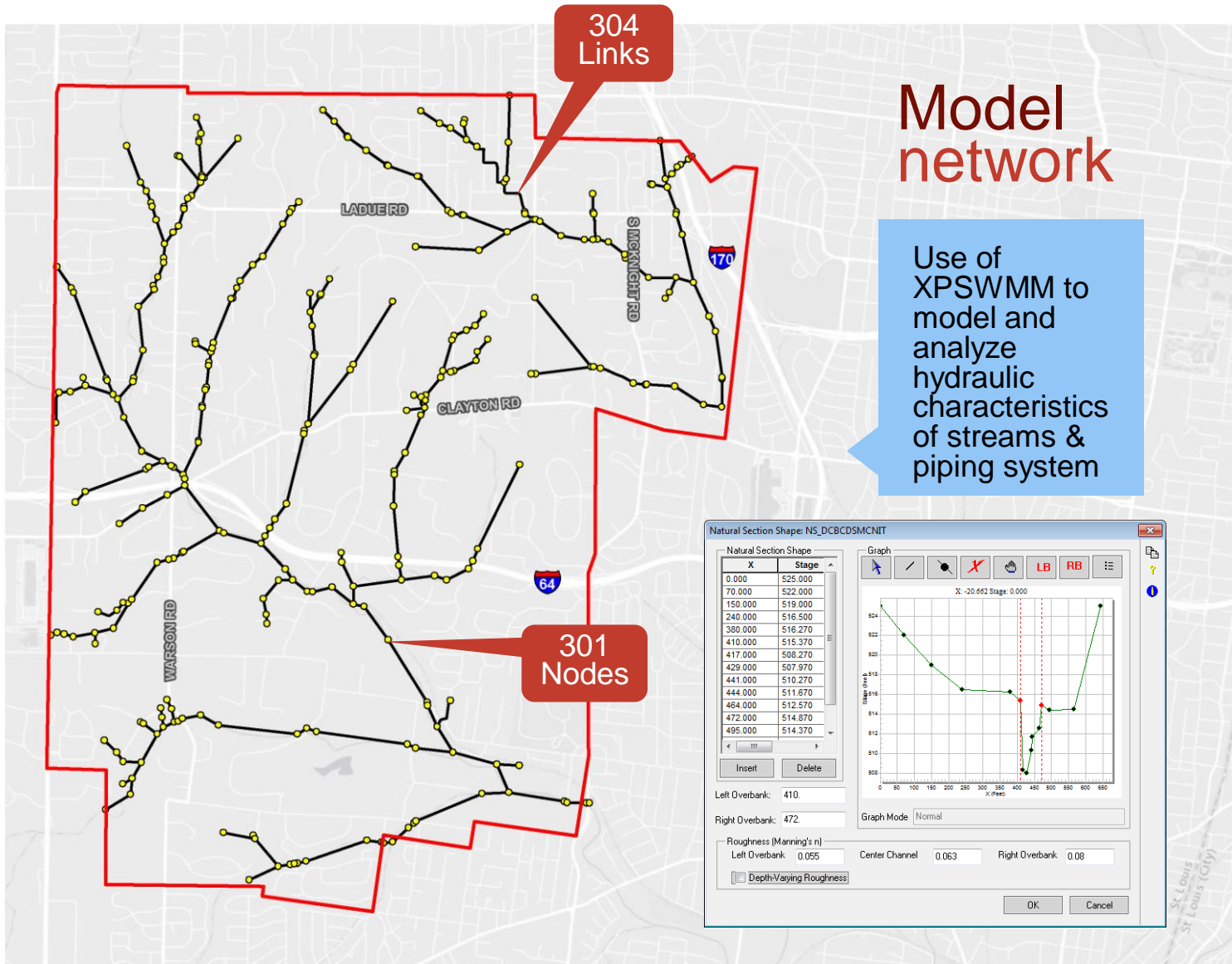
Number of square miles of area that drain into the City of Ladue



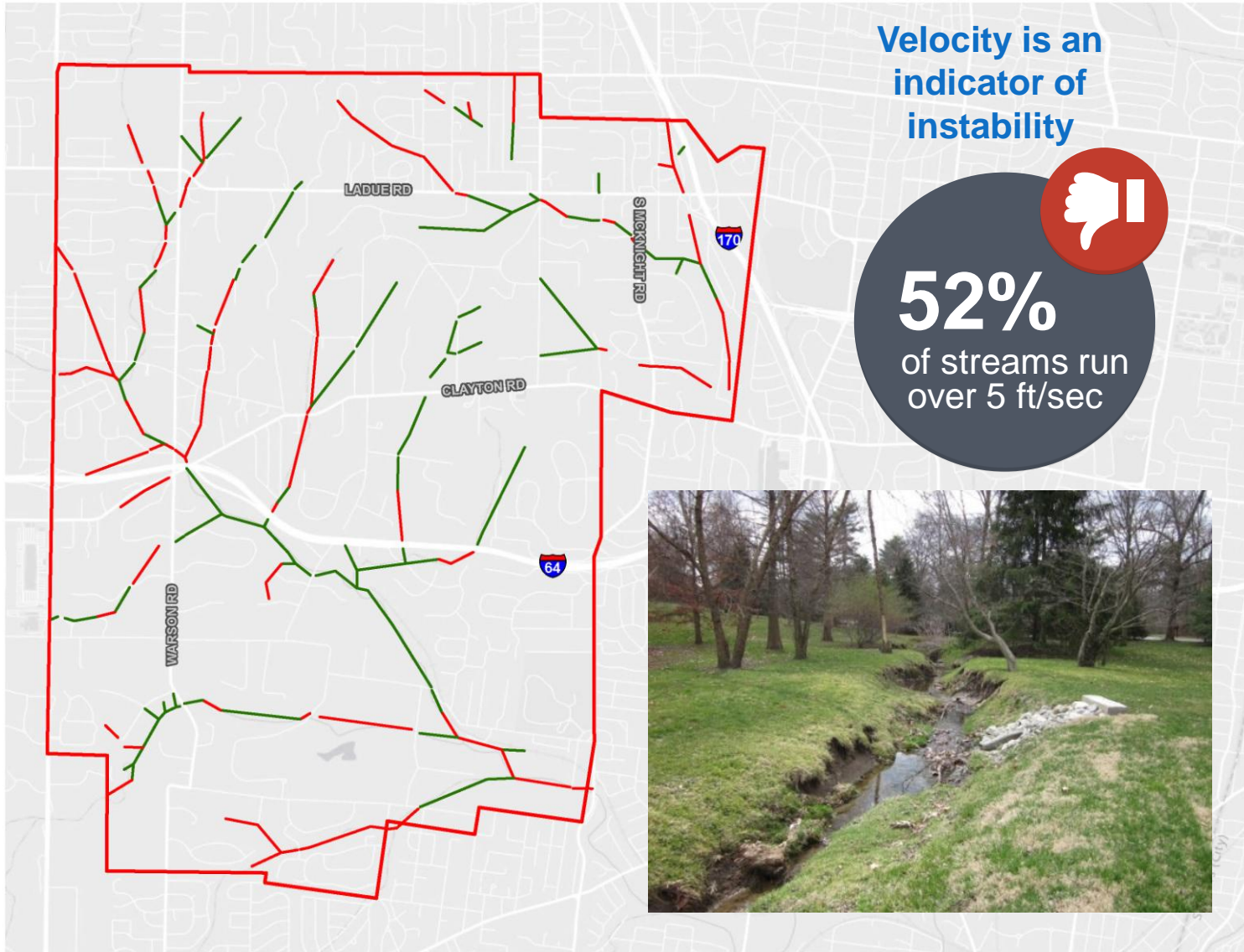
467

Number of miles of drainage lines created by HR Green in the modeling of the watersheds

... hydraulic model



... open channel results



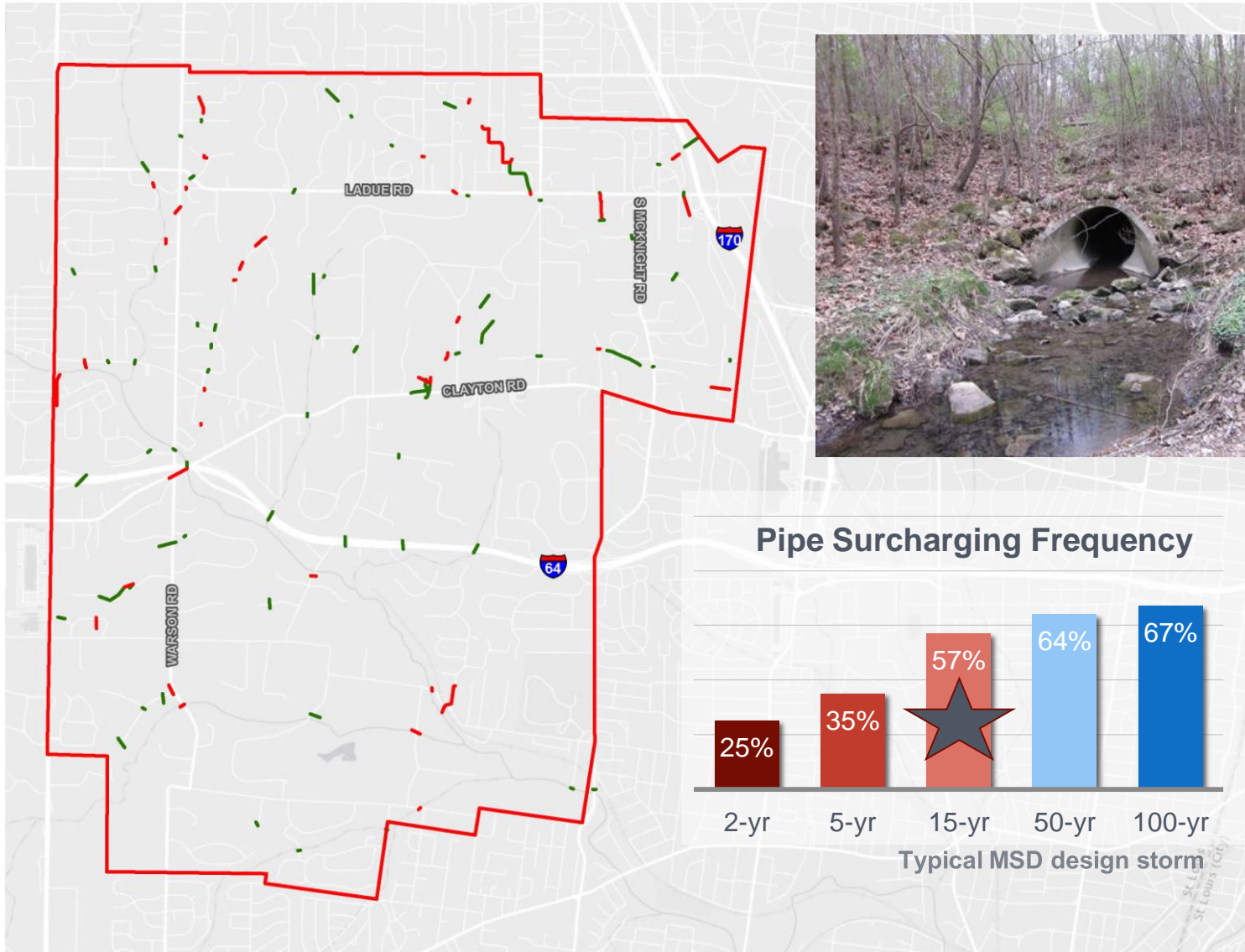
Velocity is an indicator of instability



52% of streams run over 5 ft/sec



... piped system results



... engaging the public

Project Website

#1 tool used to engage public and seek feedback. Very popular tool for the residents.



Project email

Over 130 emails were received or sent to this email address in addition to the other forms of communication available.



Phone

Many residents shared their concerns verbally over the phone to document problems.



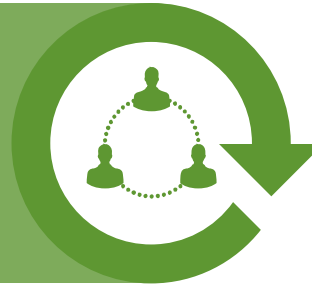
Open House Meetings

Over 100 residents met with our scientists and engineers to share information.



Dogwood Festival

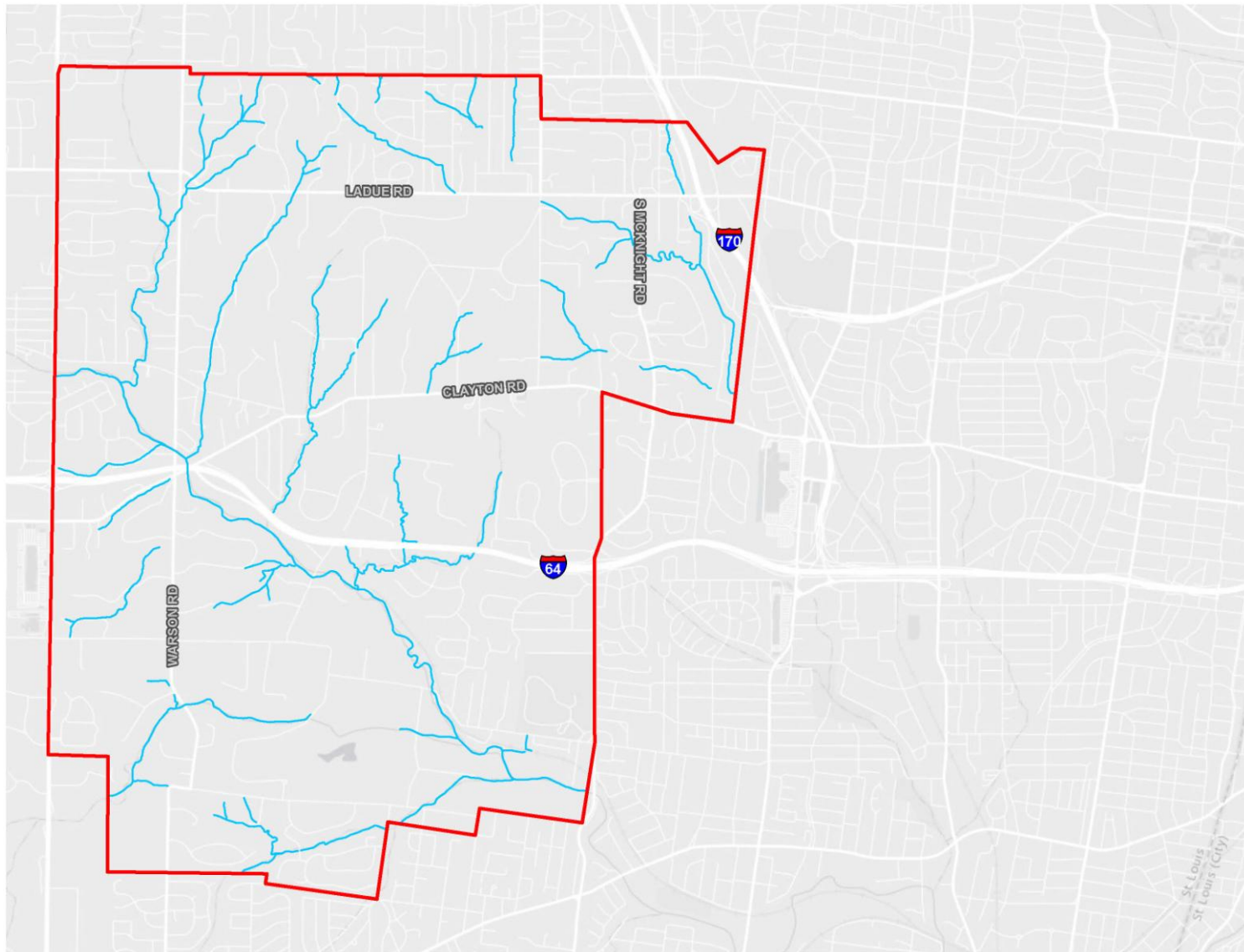
HR Green set up a booth at the Dogwood Festival to garner awareness for the program and the ways for residents to get involved.



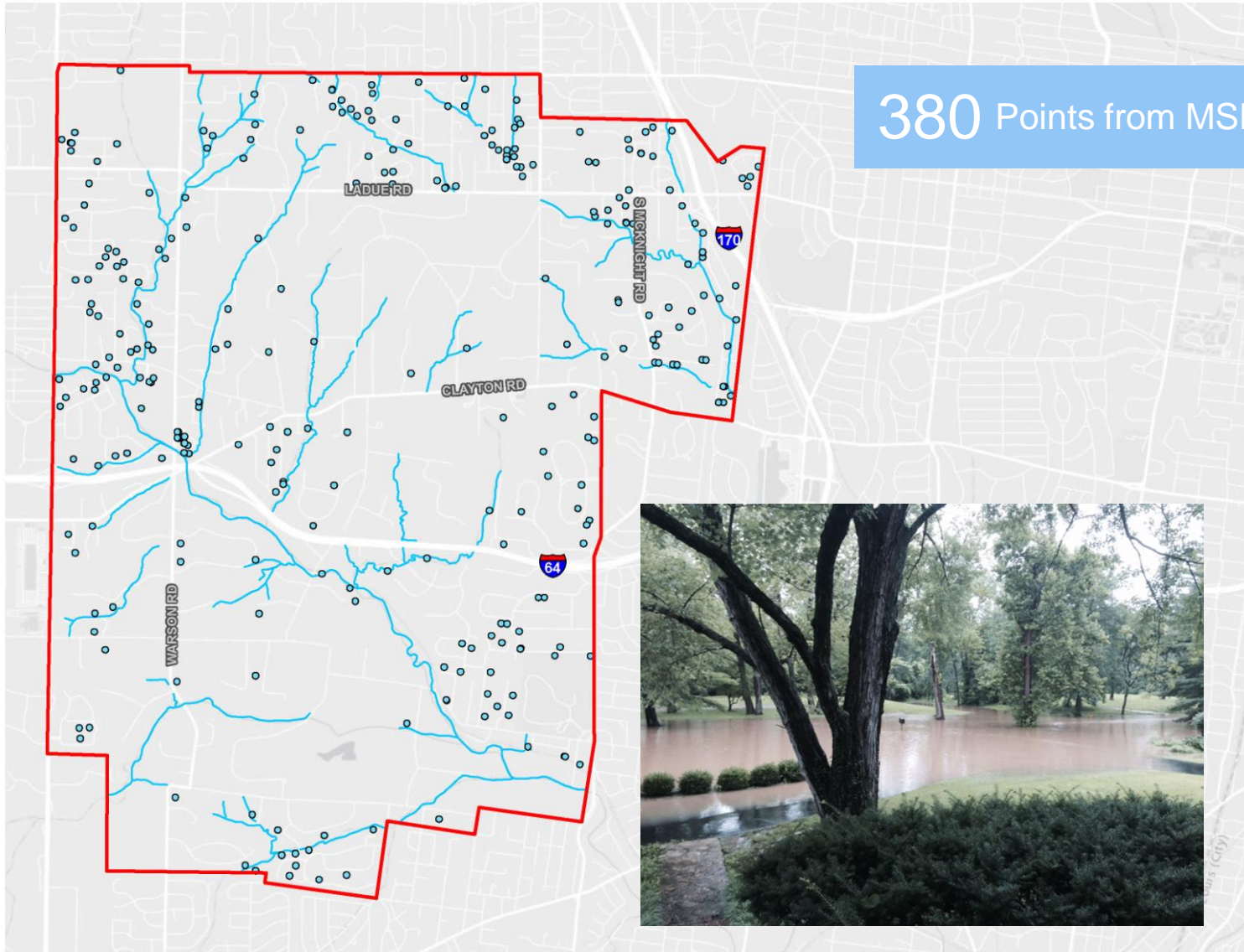
Public Engagement

A variety tools and communication methods were used to invite the public to have their voice heard and their concerns documented.

... resident concerns

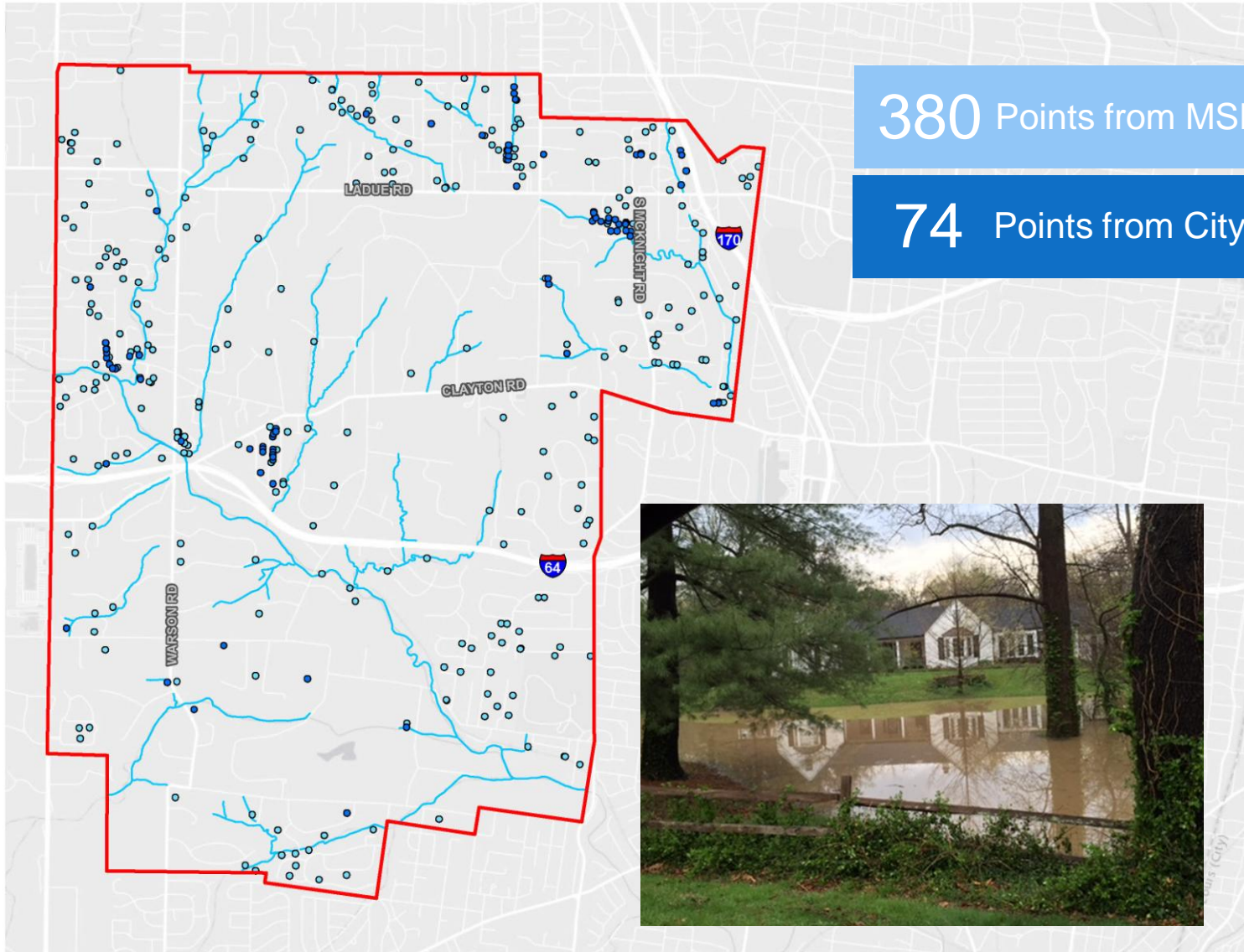


... resident concerns

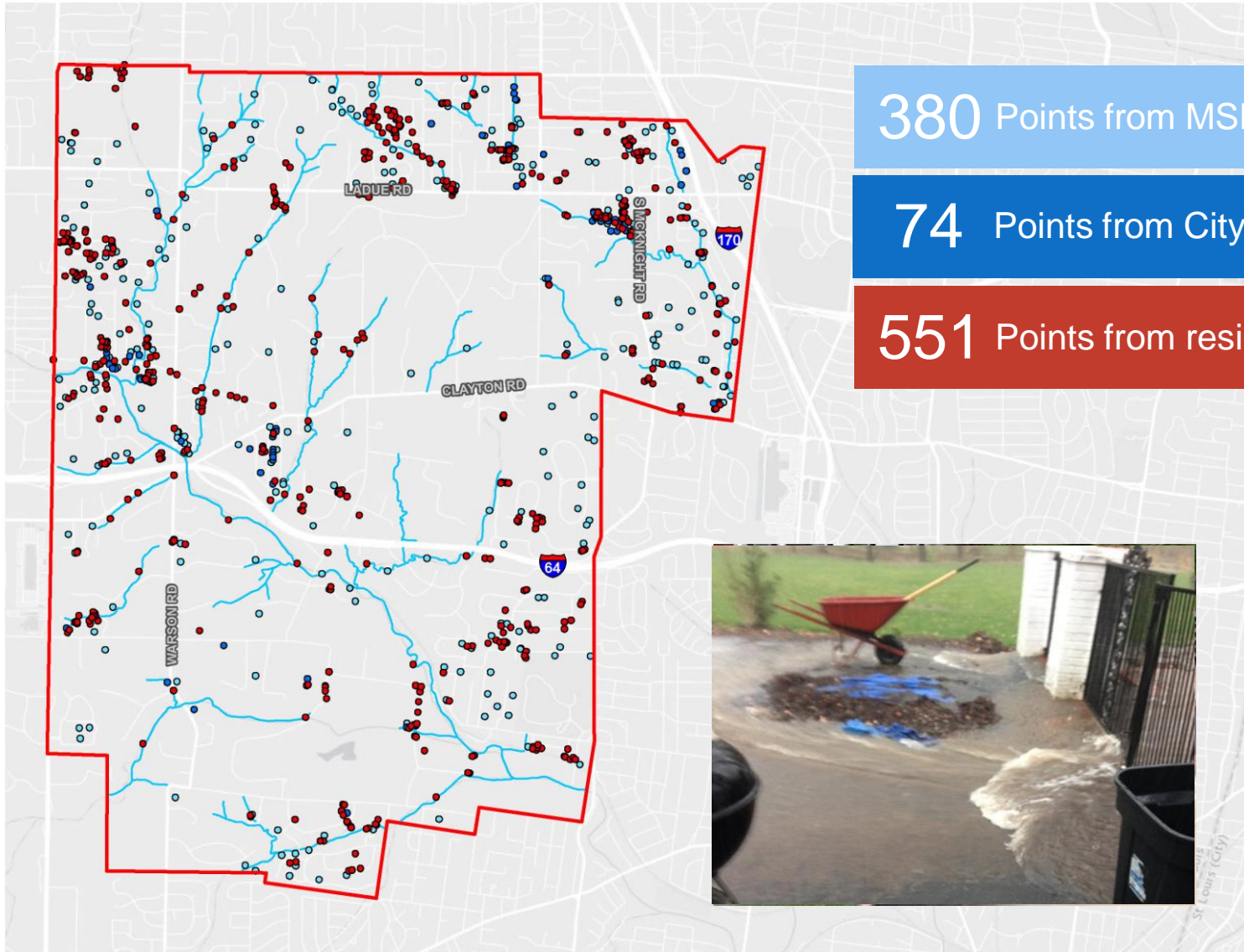


380 Points from MSD

... resident concerns



... resident concerns



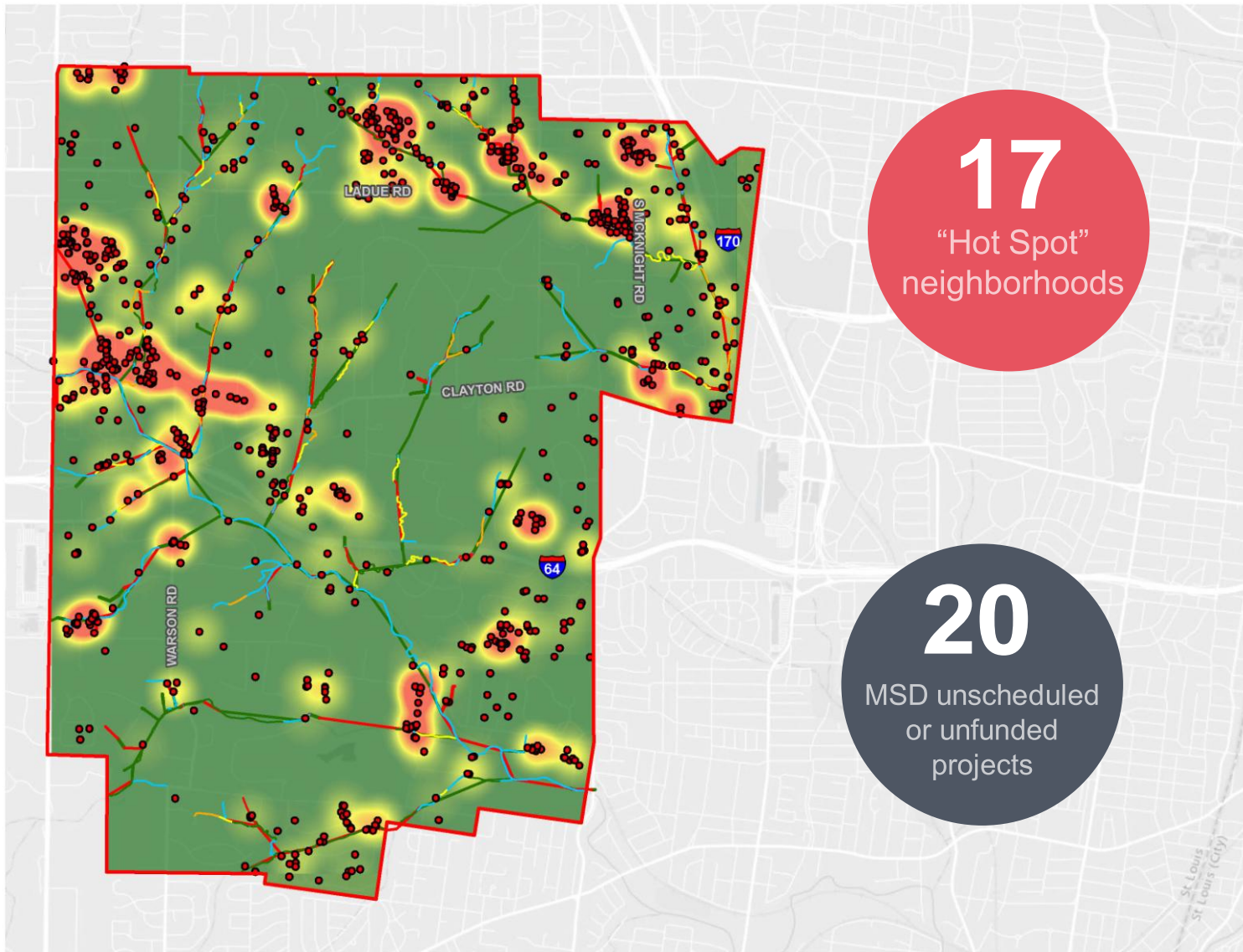
380 Points from MSD

74 Points from City

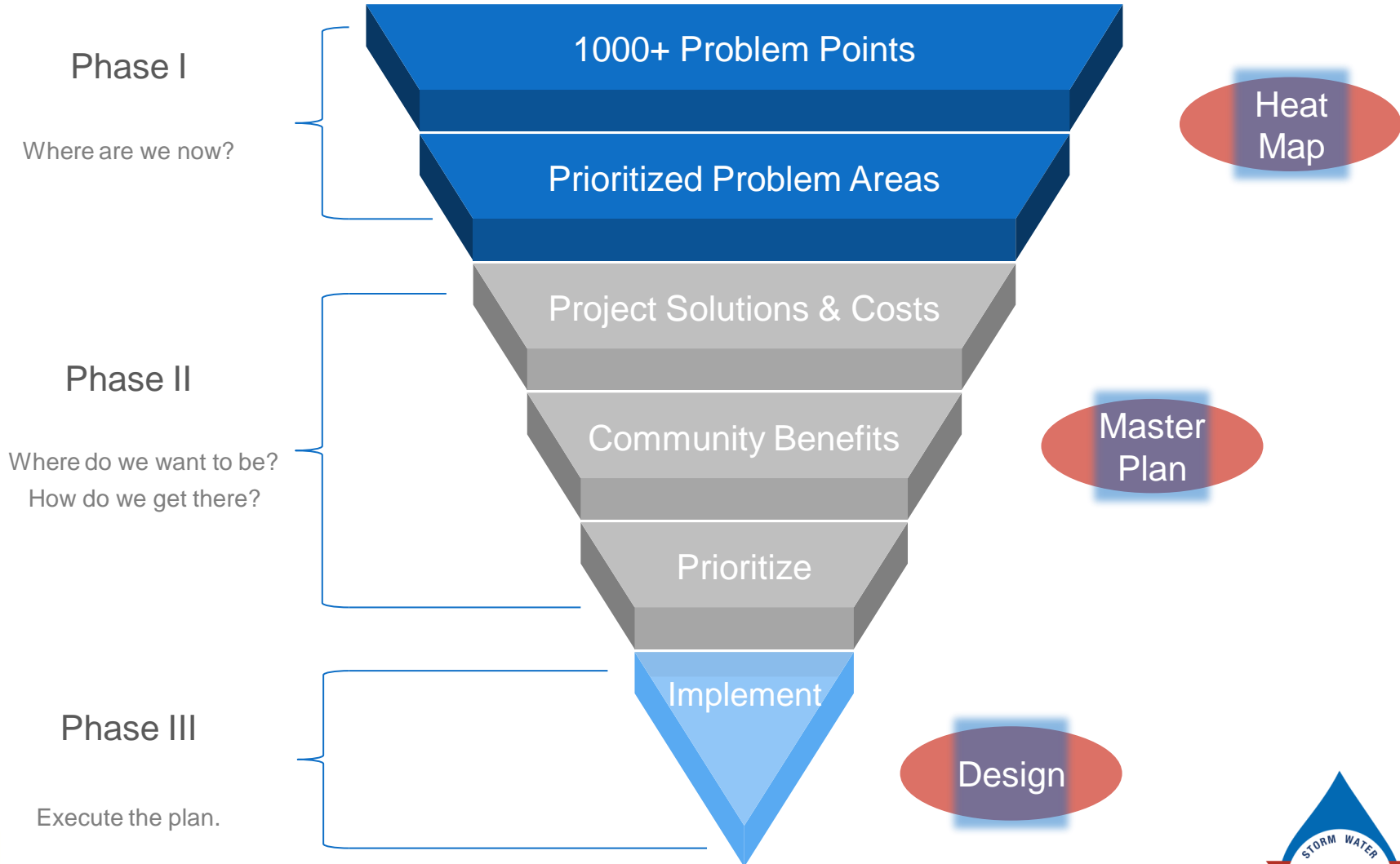
551 Points from residents



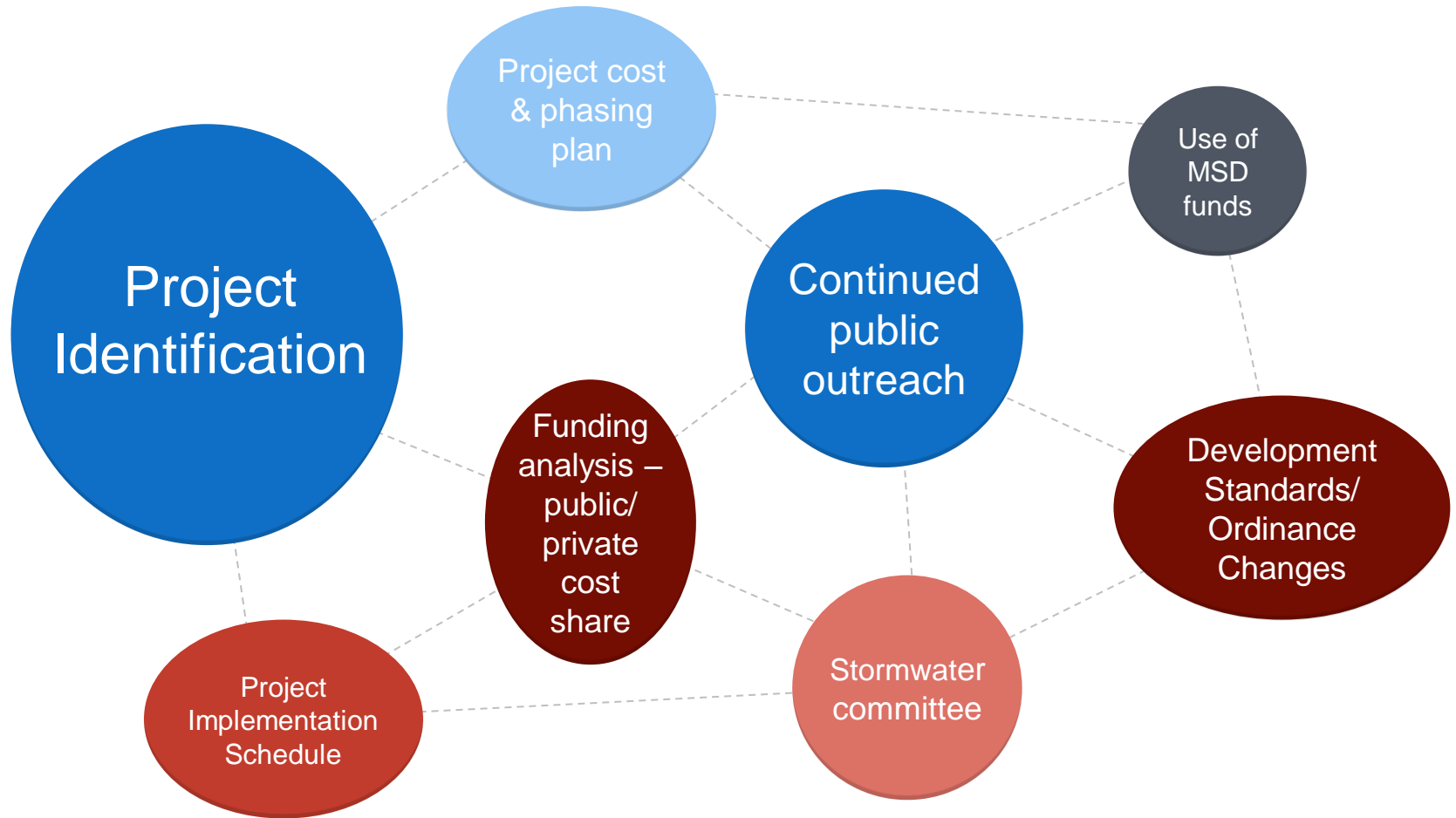
... heat map



... the funnel concept



... where do we go from here?



Integrated master plans achieve success when community resources are directed towards managing issues using the most effective solutions to address the most significant problems in a way that is affordable to citizens.

... key issues

Identify

- Public vs. Private Property
- Requests for Acute Fixes
- Optimized Solutions

Prioritize

- Flood Mitigation vs. Stream Mitigation
- Benefits – What about water quality?
- Defensible Prioritization

Implement

- Which projects are worth it?
- Maximize ROI

... example project implementation cycle

Year	Master Plan Process	PI*	Project Group (package #1)	Project Group (package #2)	Project Group (package #3)	Project Group (package #4)	Project Group (package #5)	Potential Yearly \$\$\$ Outlay (in thousands)
2016	Develop		Design					\$600
2017			Acquire Esmts. / Construct	Design / Acquire Esmts.	Design			\$1,250
2018				Construct	Acquire Esmts.	Design		\$1,000
2019					Construct	Acquire Esmts.	Design	\$1,000
2020						Construct	Acquire Esmts.	\$1,000
2021							Construct	\$1,000
...								

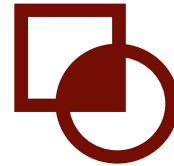
* PI = Public Involvement

... implementation continued



Sustainable

Tax generates \$1M / year; at this rate the program is funded



Share the Cost

Cost Share opportunities could exist with Deer Creek Watershed Alliance and the Public



Flexibility

\$6/7M in reserves provides City flexibility



MSD as a Partner

Program is set up to align with MSD criteria; we will aggressively pursue MSD Cost Share Opportunities



Alleviating Stormwater Problems in Ladue

... let's talk

questions...
comments...
concerns...

