



NPS Projects:

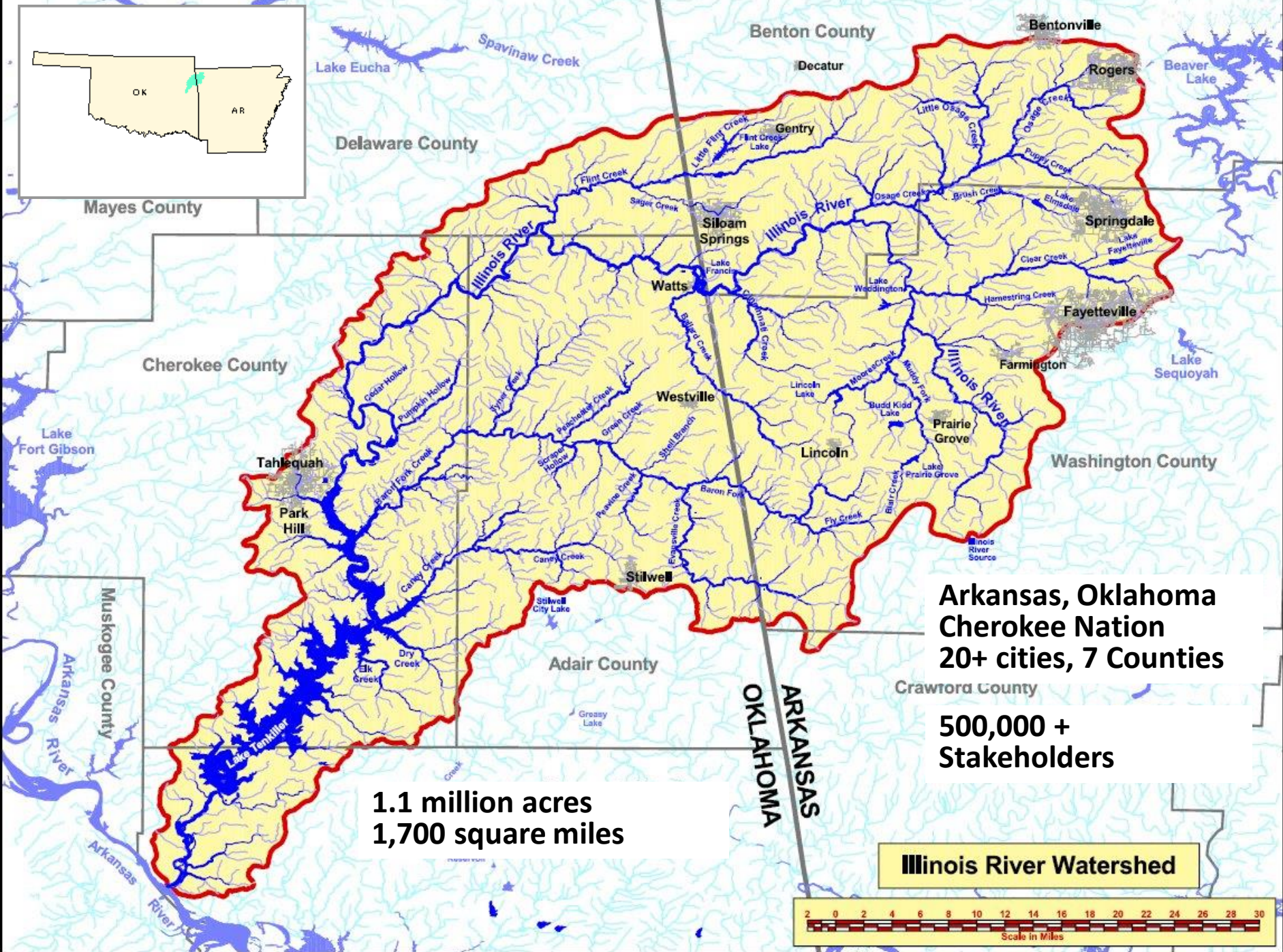
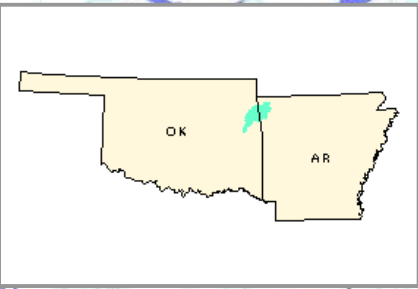
**Water Quality Demonstration and Educational Program
for the Illinois River Watershed – Green Infrastructure**

&

**Low Impact Development Demonstration and Education
Project for the Illinois River Watershed**

2015 Nonpoint Source Pollution Stakeholder & Project Review Meeting





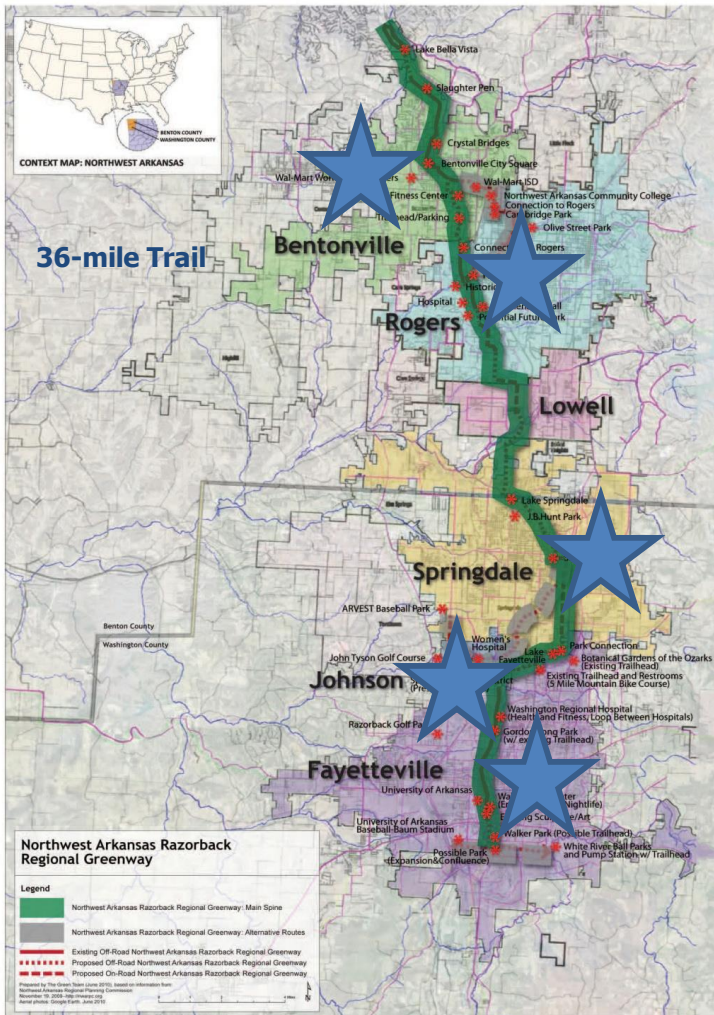
**1.1 million acres
1,700 square miles**

**Arkansas, Oklahoma
Cherokee Nation
20+ cities, 7 Counties**

**500,000 +
Stakeholders**

Illinois River Watershed





Northwest Arkansas Razorback Regional Greenway



ILLINOIS *River*
WATERSHED PARTNERSHIP

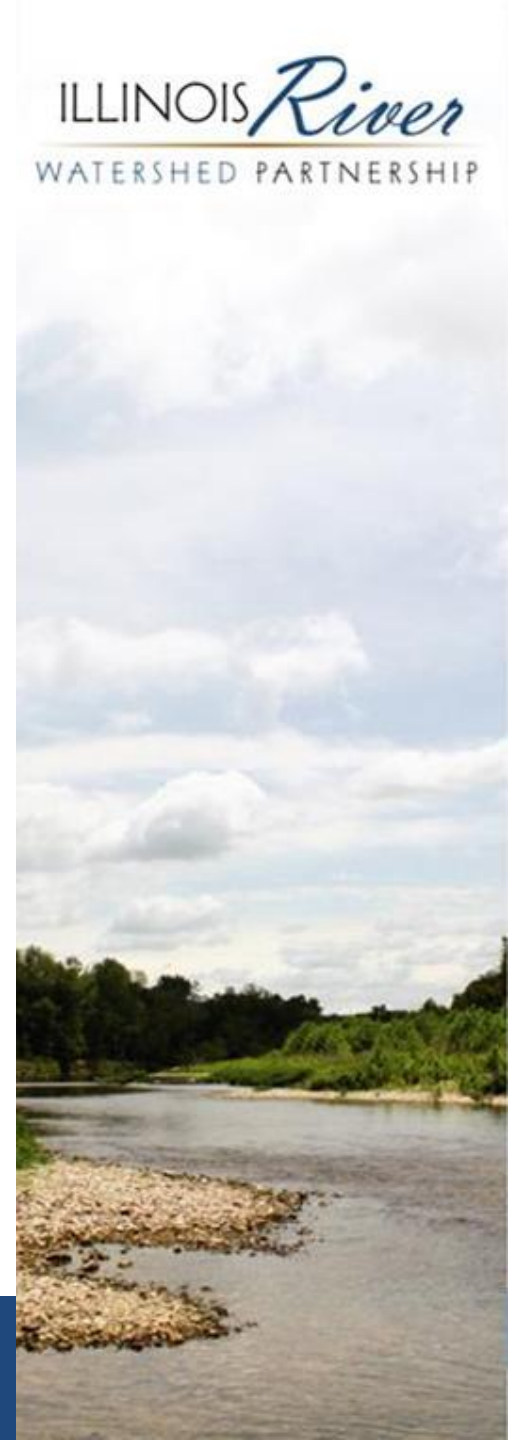
Pictures provided by
Razorbackgreenway.com

Green Infrastructure Grant 13-300

Project Goals:

Design and build at least five green infrastructure projects to improve water quality.

Educate and encourage communities to implement such practices on their property and change behaviors that contribute to water pollution and improvement of water quality.





Mercy Trailhead, Rogers



Mercy Trailhead, Rogers



Mercy Trailhead, Rogers, AR



Mercy Trailhead, Rogers, AR



Mercy Trailhead, Rogers, AR



Mercy Trailhead, Rogers, AR



Mercy Trailhead, Rogers, AR



Volunteer Tree Plantings at Mercy



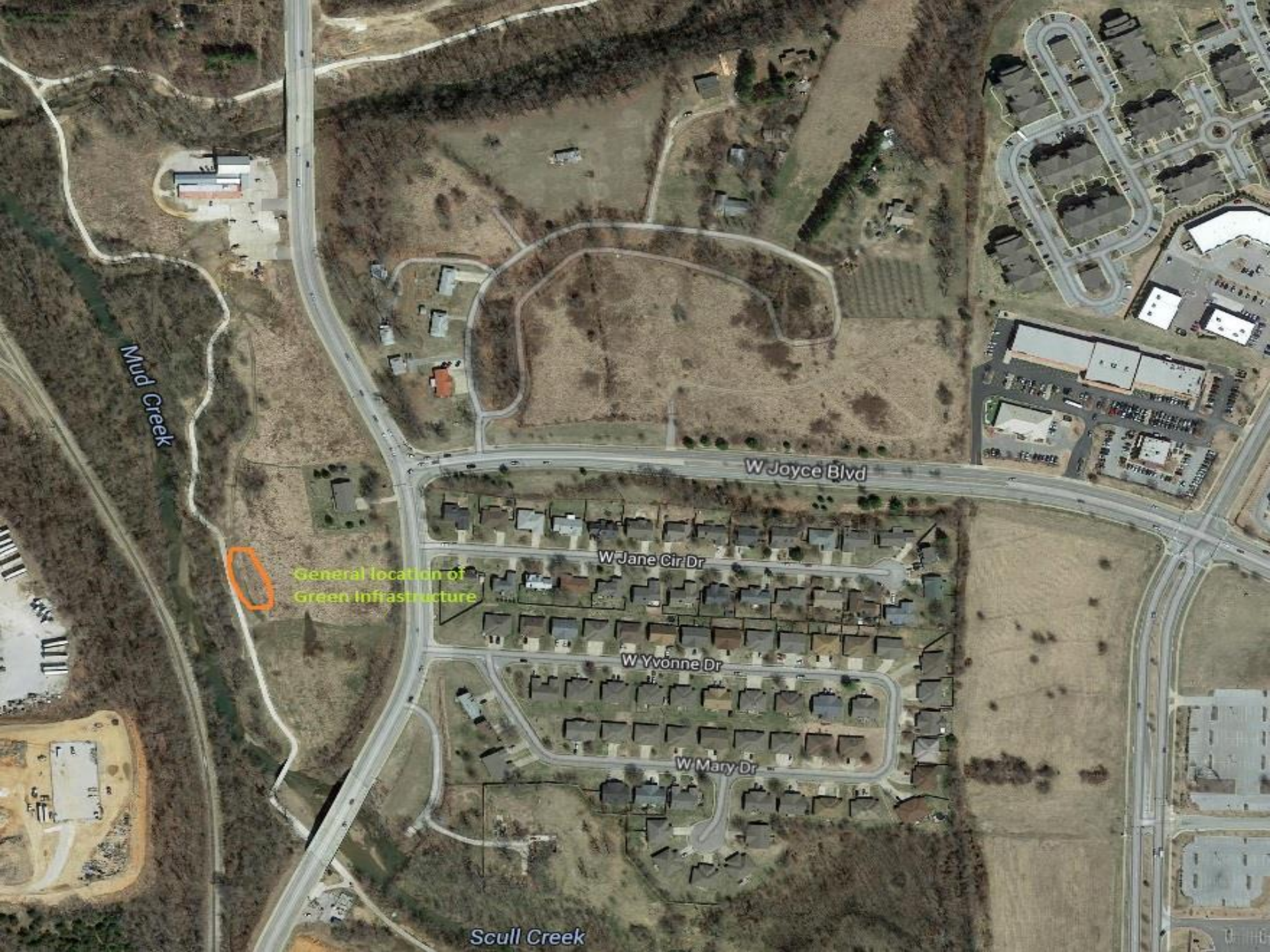


Award: Small projects winner and Grand Conception Award in the Water Resources category, selected by American Council of Engineering Companies of Arkansas





Mercy Trailhead, Rogers, AR



Mud Creek

W Joyce Blvd

W Jane Cir Dr

W Yvonne Dr

W Mary Dr

General location of
Green Infrastructure

Scull Creek

12' to 18' TALL SEGMENTAL BLOCK WALL

5 bergamot

11 swamp milkweed **sub Little Joe Pye Weed**

1 red ozier dogwood

3 swamp milkweed **bergamot?**

common rush

11' bluestem

11 beardtongue

11 tickseed

7 bluestar

11' bluestem

AREA OF EXCAVATION FOR RAN GARDEN
SLOPE SOUTH TO NORTH WITH 3:1 SLOPE
TO A DEPTH OF 12" AT THE NORTH END.
MAINTAIN 12" DEPTH TO THE BOTTOM OF
RETAINING WALL WITH 1:1 SLOPE TO
EXISTING GRADE FOR TOP OF WALL.

3' WIDE X 3' THICK CRUSHED ROCK PATH

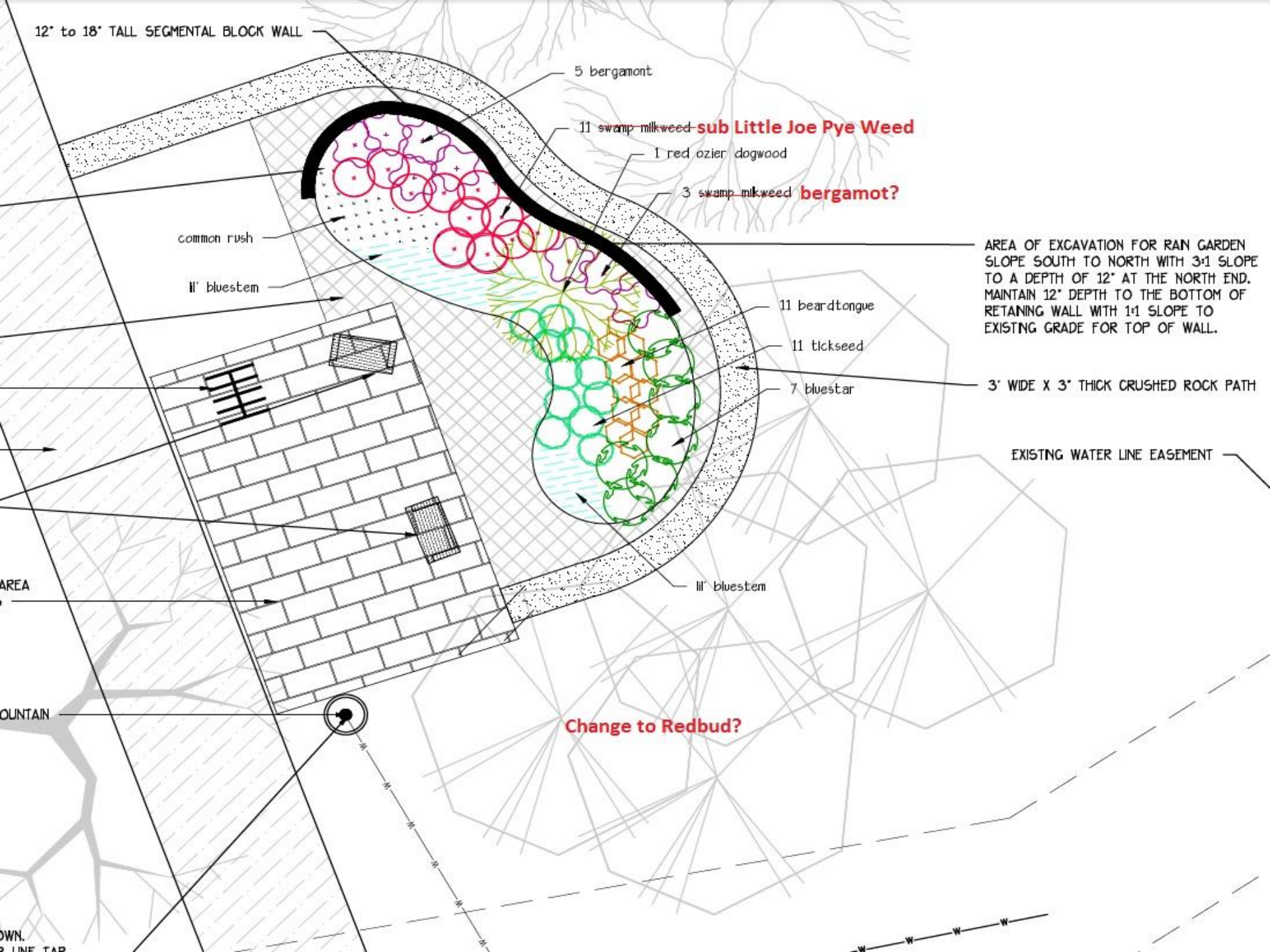
EXISTING WATER LINE EASEMENT

Change to Redbud?

AREA

MOUNTAIN

OWN.
LINE TAB





Johnson Trailhead, Johnson AR



Johnson Trailhead, Johnson AR



Johnson Trailhead, Johnson AR



2015

— WILL BE AN —

AMAZING

— YEAR —

Amazeum, Bentonville, AR



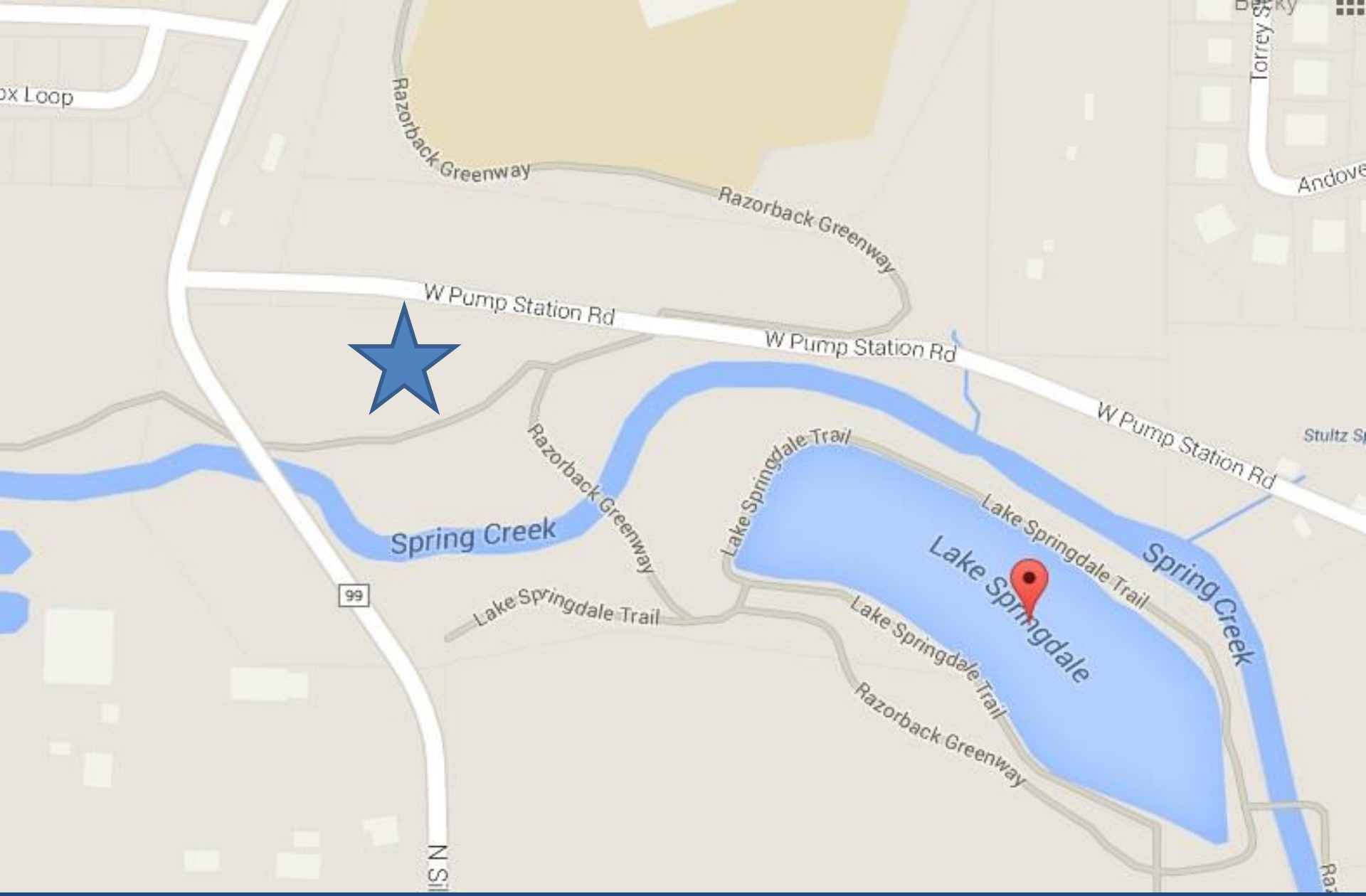


Amazeum, Bentonville, AR





Amazeum, Bentonville, AR



Lake Springdale Trailhead, Springdale, AR



CONTRACTOR SHALL COMPRESS A DRAINAGE PATH
HAS BEEN PROVIDED AND THE SIDEWALK
MATERIAL IS GRACED TO PROVIDE POSITIVE
DRAINAGE TO THE FLUMES PROVIDED UNDER
THE EXISTING SIDEWALK

HARDWOOD MULCH
& DEEP

CONTRACTOR SHALL COMPRESS DRAINAGE PATH
HAS BEEN PROVIDED AND THE SIDEWALK
MATERIAL IS GRACED TO PROVIDE POSITIVE
DRAINAGE TO THE FLUMES PROVIDED UNDER
THE EXISTING SIDEWALK

CLEAR AREA OF EXISTING SIDE WALK
CONTRACTOR SHALL NOT ENCROACH
UPON THE AREA DURING CONSTRUCTION

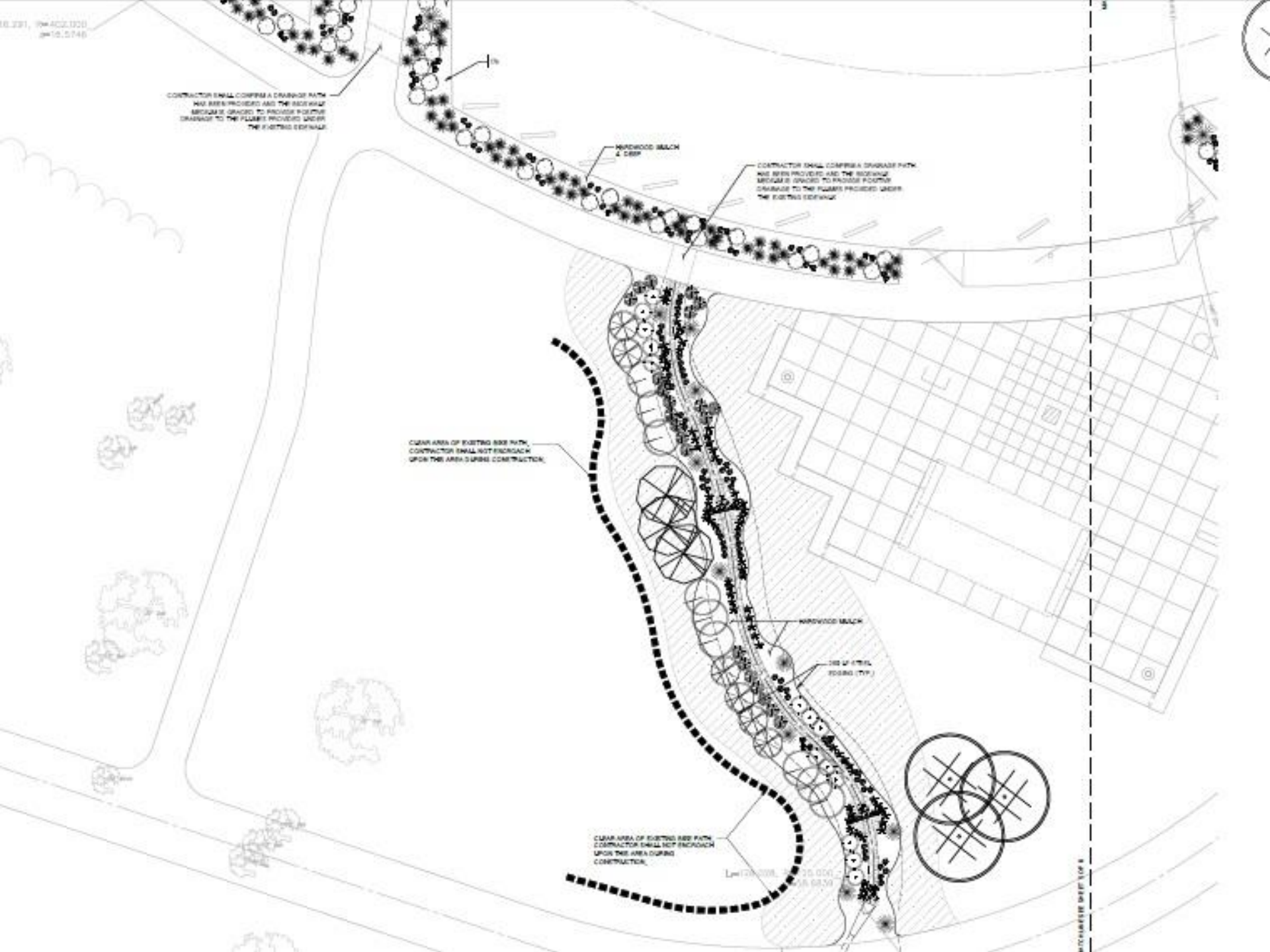
HARDWOOD MULCH

18" 4" (TYP)
EDGE (TYP)

CLEAR AREA OF EXISTING SIDE WALK
CONTRACTOR SHALL NOT ENCROACH
UPON THE AREA DURING
CONSTRUCTION

Lot 20000, 20000, 20000
2410.5740

ENCLOSURE SHEET 10/4





Lake Springdale Trailhead, AR



Gordon Long Park, Fayetteville, AR



Gordon Long Park, Fayetteville, AR



Gentry Pocket Park, Gentry, AR

RAZORBACK



Green Infrastructure for Clean Water

What is Green Infrastructure? Native Plants for Water Quality

Green infrastructure uses vegetation, soils, and natural processes to manage rain water where it falls and reduce non-point source pollution to improve water quality. Installing these "soft" infrastructure measures reduces sediment, erosion and prevents that sediment from entering stormwater runoff. It prevents pollutants from entering and affecting aquatic habitat.

Green infrastructure also addresses the negative impacts of higher water temperatures from streams, such as and providing habitat are beneficial to the health and reproduction of aquatic life in streams. Learn more about what Green Infrastructure is here!



1. Bioswales

Bioswales are a Green Infrastructure technique that use vegetation to slow storm runoff, and allow rain to soak into the ground, where it's natural filter. This technique is especially useful from the parking lot, driveway and building foundations that often are the most polluted areas in the stormwater system, which is why they are best used as the first source waterway, which is why they are best used as the first source waterway, which is why they are best used as the first source waterway.



2. Porous Pathways

Permeable pavement allows water to infiltrate the ground, which reduces runoff and helps control erosion. Permeable pavement is used in parking lots, driveways and building foundations that often are the most polluted areas in the stormwater system, which is why they are best used as the first source waterway, which is why they are best used as the first source waterway.



3. Native Plants

Native plants are adapted to local soil and climate conditions. They are drought-tolerant and require less water and maintenance. They also provide habitat for local wildlife and help reduce erosion. Native plants are best used in landscaping and green infrastructure projects.



4. Riparian Buffer

Riparian buffers are vegetated areas adjacent to streams and rivers. They help filter sediment and pollutants from runoff, reduce erosion, and provide habitat for wildlife. Riparian buffers are best used along streams and rivers.

To learn more about Green Infrastructure, visit www.bep.org.



Black-eyed Susans



Little Bluestem



Ironweed



New England Aster



Purple Coneflower



Switchgrass

Green Infrastructure at Mercy Trailhead, Rogers, AR

The Mercy Trailhead Improvement project is a partnership with the U.S. Fish and Wildlife Service, Arkansas State Game Commission, Blount State School District, City of Rogers, the Regional Planning Commission, and the Arkansas Forestry Commission. In December 2014, the Green Infrastructure project installation was completed.



Before



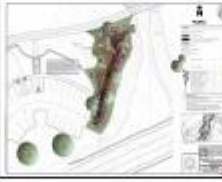
After



With the help of volunteers like you, we can make a positive difference in our watershed!

Annual Top Coffee Tuff activities and BMP plant trees along the Razorback Greenway, Rogers, AR.

Annual Watershed Clean-up events from the City of Rogers, University of Arkansas, and Blount State School District Partnership help to clean up our area in every nook and cranny.



The Illinois River Watershed

The Illinois River Watershed Partnership, formed in 2008, is a non-profit organization with the mission to improve the integrity of the Illinois River through public education and community outreach, water quality monitoring, and the implementation of conservation and restoration practices throughout the watershed.

The Partnership is represented by six categories of stakeholders:

- Agriculture, Business, Conservation, Construction, Government, & Technical/Watershed Education Field.



There are many tributaries to the Illinois River in the watershed and we need your help to keep them healthy. Visit www.illinoisriver.org for more information.

GREENWAY



**Low Impact Development Demonstration and Education
Project for the Illinois River Watershed
Grant 13-3300**



Project Goals:

Design and Build Low Impact Development

Demonstration Projects on Site: Determine design for rain garden, green roof pavilion, and raised bed agricultural demonstration, porous pavers for parking spaces, phosphorous removal structure, and vegetated wall.

Educate and motivate stakeholders to implement similar LID practices on their property and change behaviors that contribute to water pollution and improvement of water quality.



Low-Impact Development at the Learning Center Grant 13-1300



Serviceberry Tree

Amalanchier

*“supports 119 different species of moths
and butterflies native to the United States
as either a larval host or source of nectar”*

-Doug Tallamy

**Low-Impact Development at the Learning Center
Grant 13-1300**



Purple Coneflower

Echinacea purpurea

Nectar source for butterflies and hummingbirds, songbirds feed on seed heads

**Low-Impact Development at the Learning Center
Grant 13-1300**



Blue Vervain

Verbena hostata

Insects and bees, particularly bumblebees, collect nectar and pollen, and many birds, such as sparrows and cardinals, eat the seed

**Low-Impact Development at the Learning Center
Grant 13-1300**



Rush

Juncus

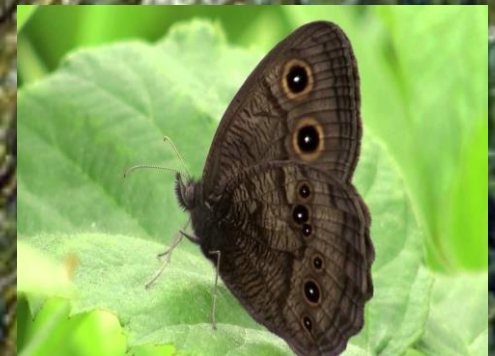
clump forming wetland plant, attracts wildlife and provides nesting material and shelter

**Low-Impact Development at the Learning Center
Grant 13-1300**

Little Bluestem

Schizachyrium scoparium

Important food source for tiny butterflies - grass skippers and wood nymphs, and their abundant seed stems along road sides and in wild areas provide forage for many songbirds through winter



**Low-Impact Development at the Learning Center
Grant 13-1300**



Pollutant Removal Rates:

- Copper: 50-89%
- Zinc: 62-88%
- TSS: 60-90%
- Total Phosphorus: 65%

Volume Reduction

Reduce flow rates 70-90%
Almost pre-development
conditions!

LID- Pervious Pavers at the Learning Center



PERMEABLE
PAVER

BEDDING

BASE

SUB-BASE

SUB-GRADE

CONCRETE CURB

The Bio-Aquifer Storm System (BASS) allows for natural stormwater drainage and groundwater recharge, making the paved surface ecologically sound and economically smart.

In fact, the BASS method is an acceptable post-structural best Management Practice (BMP) used to meet the federal stormwater requirements. Roads and parking lots created using BASS with these permeable pavers offer vast benefits.


DRAINAGE PIPE

Low Impact Development at WLC




**Low-Impact Development at the Learning Center
Grant 13-1300**







POROUS PAVERS

LOW IMPACT DEVELOPMENT






1




2



3

- 1** Porous paving provides 100% pervious surface by allowing rain runoff to pass through small, stone-filled openings between solid, high-strength durable concrete pavers.
- 2** Porous paving, also known as permeable interlocking concrete pavement, is comprised of a layer of concrete pavers separated by joints filled with small stones. Water enters joints between pavers and flows through a layer of crushed stone. The spaces among the crushed stones store water and infiltrate it back into the soil. The stones in the joints provide 100% surface permeability and the base filters rain runoff and reduces pollutants. It meets US EPA performance criteria as a structural best management practice (BMP) while providing a parking, road or pedestrian surface that helps protect our watershed.
- 3** Lifetime infiltration rates on maintained porous paver surfaces can typically average 4 to 9 inches of rain per hour, thereby infiltrating the most intense rainstorms. This meets Low Impact Development (LID) goals for increasing site infiltration - helping rainfalls replenish groundwater sources, promotes tree survival and growth, contributes to heat island reduction through evaporation and is cost-effective, reducing the need for detention and other traditional pipe infrastructure.

For more information, visit www.lrwp.org



Low-Impact Development at the Learning Center
Grant 13-1300





Low-Impact Development at the Learning Center Grant 13-1300



Low-Impact Development at the Learning Center Grant 13-1300



Low-Impact Development at the Learning Center Grant 13-1300





Low-Impact Development at the Learning Center Grant 13-1300







Low-Impact Development at the Learning Center Grant 13-1300



Rain Water Collection System



Growing Conservation



AEP/Flint Creek Power Plant Tree Farm, Gentry



2014/2015 Outreach Education & Conservation Project Implementation TD:

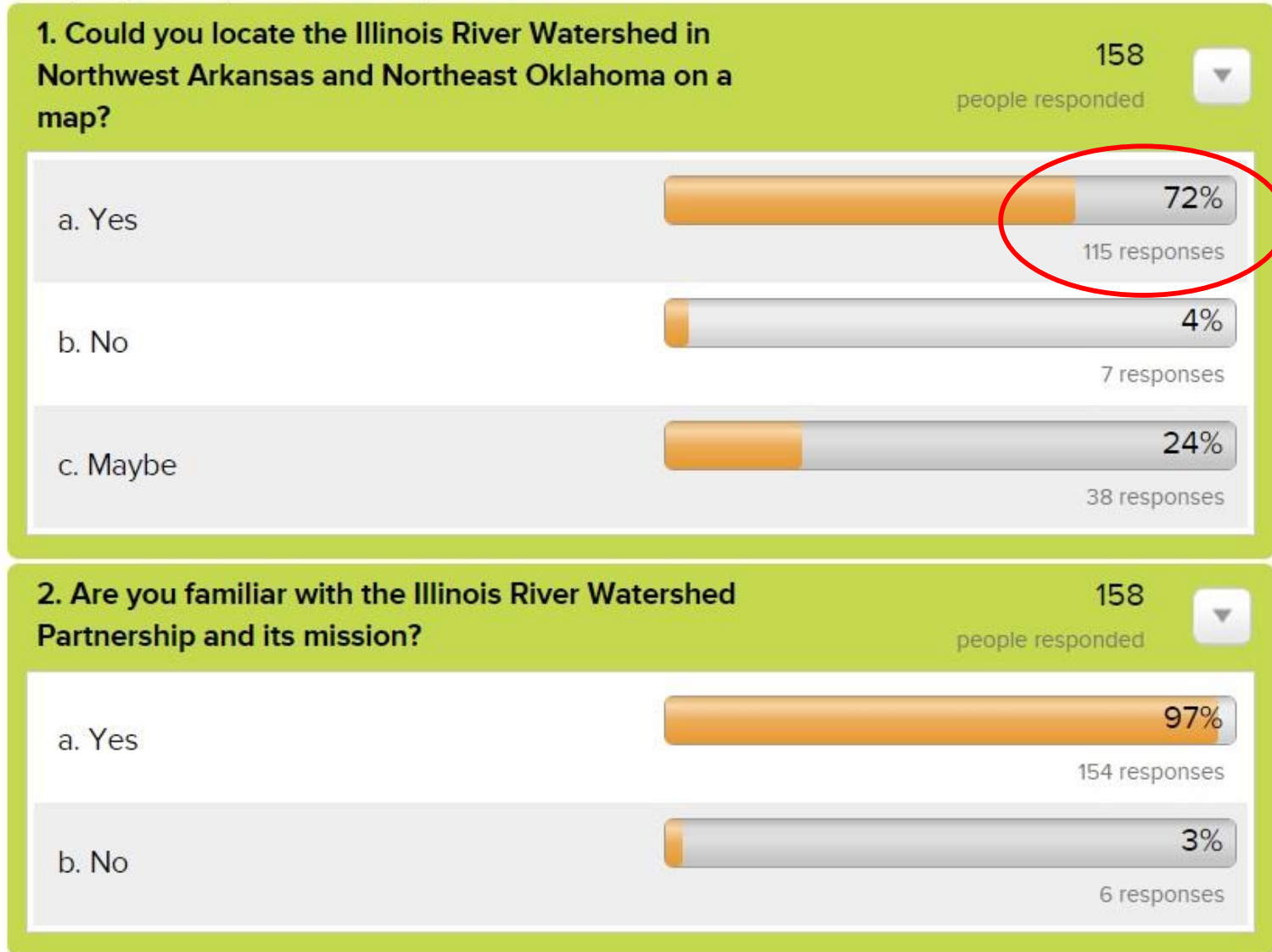
Hours: 55,091
Participants: 53,215

Economic Value/Match: \$1,156,911

* Outreach Hours at \$21

<http://www.handsonnetwork.org/tools/volunteercalculator>

How people responded to the questions



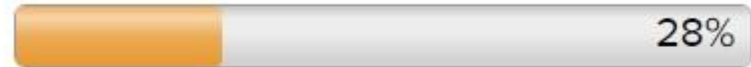
4. What is your perception today of the water quality of the Illinois River Watershed?

158

people responded



a. High Water Quality



b. Medium Water Quality



c. Low Water Quality



d. Don't know



8. What conservation practices would you like to learn more about?

158

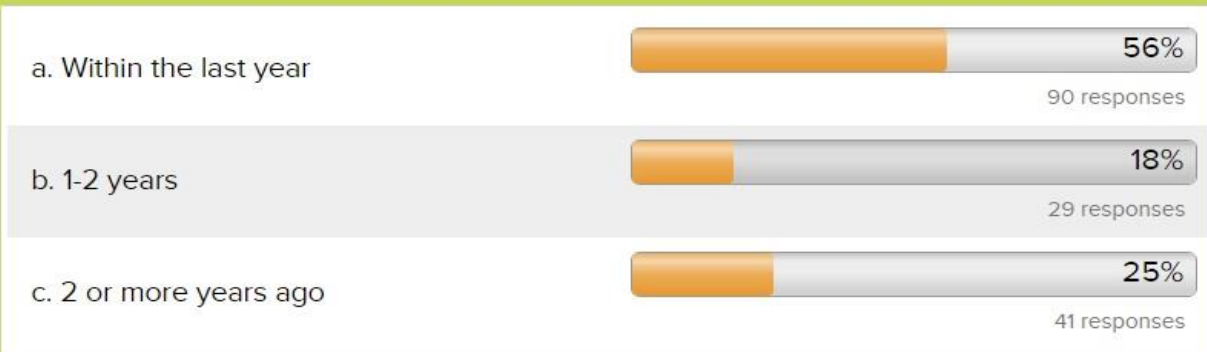
people responded



9. Have you participated in a conservation project or event in the Illinois River Watershed in the past:

158

people responded



WATERSHED CONSERVATION



KEEP CURRENT – SUBSCRIBE!

Sign up to receive our latest post.

Email Address

OUR PASSION

We all live, work and play in the Illinois River Watershed. Like you perhaps, our passion for the land and waters of Northwest Arkansas and Northeast Oklahoma drives us to preserve and restore it for future generations – our children and yours – to enjoy. We hope you'll join us on this journey of discovery, appreciation and action. Learn what makes your watershed special and how each of us contributes to sustaining it.

OUR TEAM



Our team leaders commit to protect and improve the quality of the watershed through personal actions. We respect and believe in the power of the individual and the personal impact each of us has on our surroundings. We invite you to become a part of this diverse group of people to make things happen!

A LOOK BACK IN TIME

[Throwback Thursday](#)

FOLLOW US



OLDER



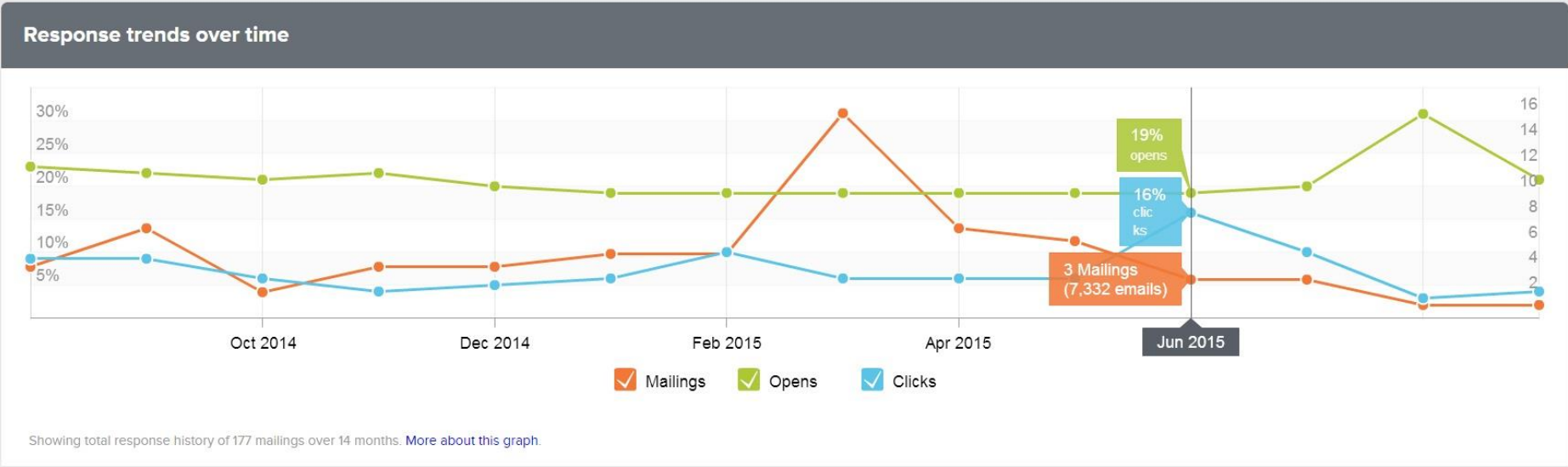
2014/15 Newspaper/Radio/Interview Features = 25+ Articles

NWA Democrat Gazette readers = 187,600

Digital and Print Media Outreach

Manage your response

Compare Mailings



2014/15 E-Newsletter = 6,000 Subscribers

Digital and Print Media Outreach



 Home

 Notifications

 Messages



IRWP

@irwatershed

TWEETS
749

FOLLOWING
658

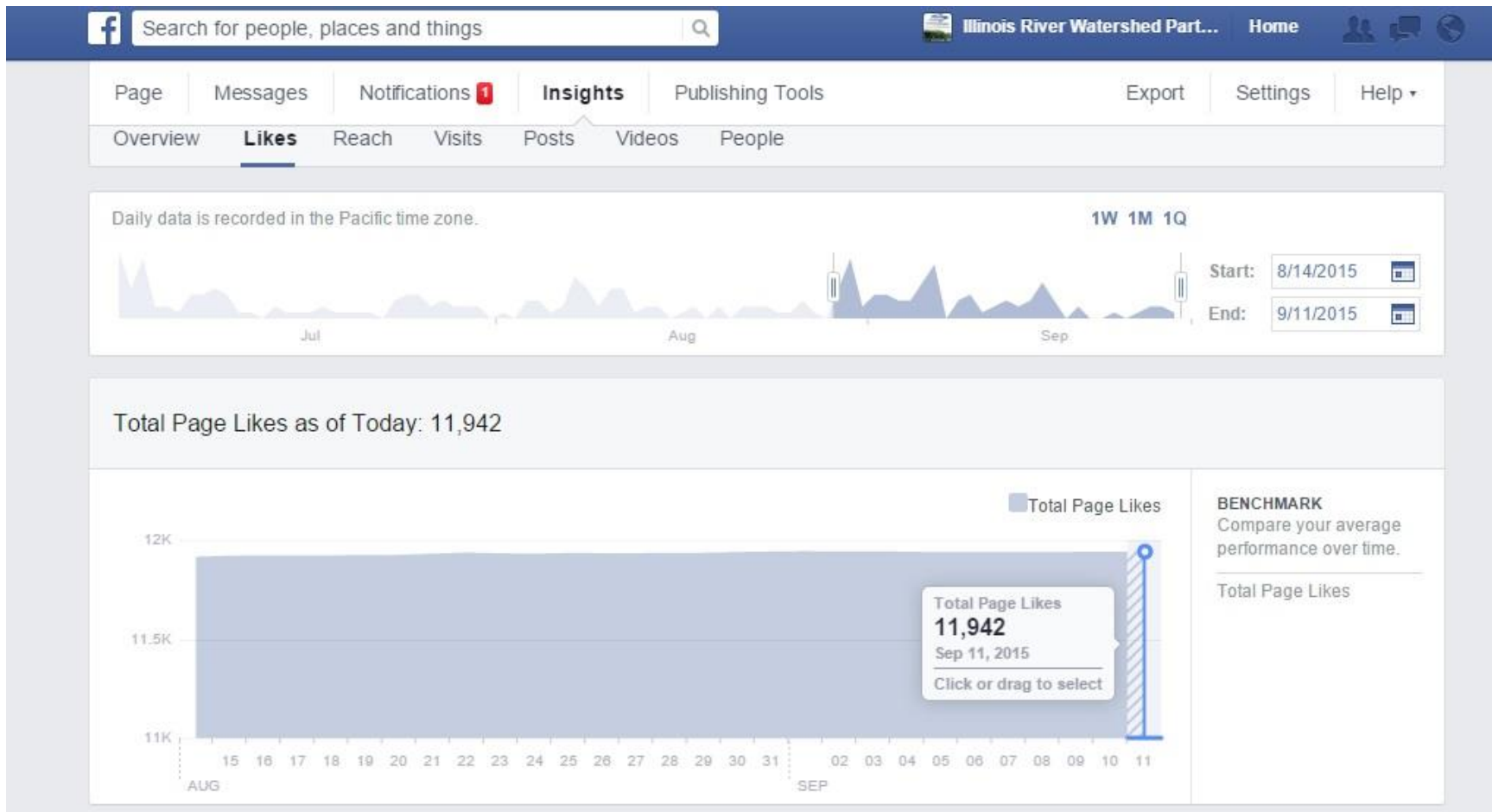
FOLLOWERS
310



Small Biz

Digital and Print Media Outreach

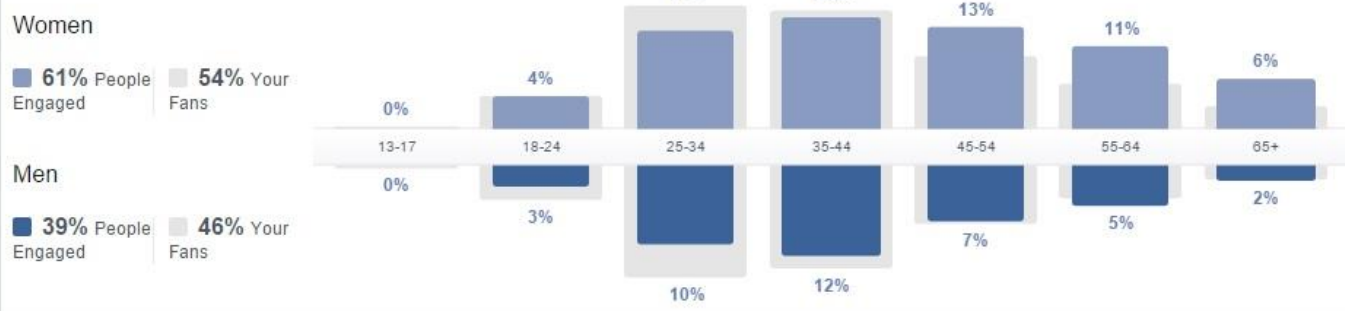




11,942 "Likes"

Your Fans **People Reached** **People Engaged**

The people who have liked, commented on, or shared your posts or engaged with your Page in the past 28 days.



Country	People Engaged
United States of America	398
Canada	1
Germany	1
Hong Kong	1
Australia	1
Brazil	1
Egypt	1
Spain	1

City	People Engaged
Fayetteville, AR	49
Tulsa, OK	31
Springdale, AR	29
Bentonville, AR	23
Cave Springs, AR	21
Siloam Springs, AR	21
Tahlequah, OK	16
Rogers, AR	16
Broken Arrow, OK	11
Muskogee, OK	9

Language	People Engaged
English (US)	399
English (UK)	5
Portuguese (Brazil)	1



**IRWP Approach: Education
Motivation
Action
Watershed Protection**

Illinois River, OK

Thank you!