

Evaluation and Design of Rain Gardens for Enhancement of Water Quality in the Illinois River Watershed

AR Project Grant 11-400
CWA Section 319(h)

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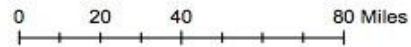
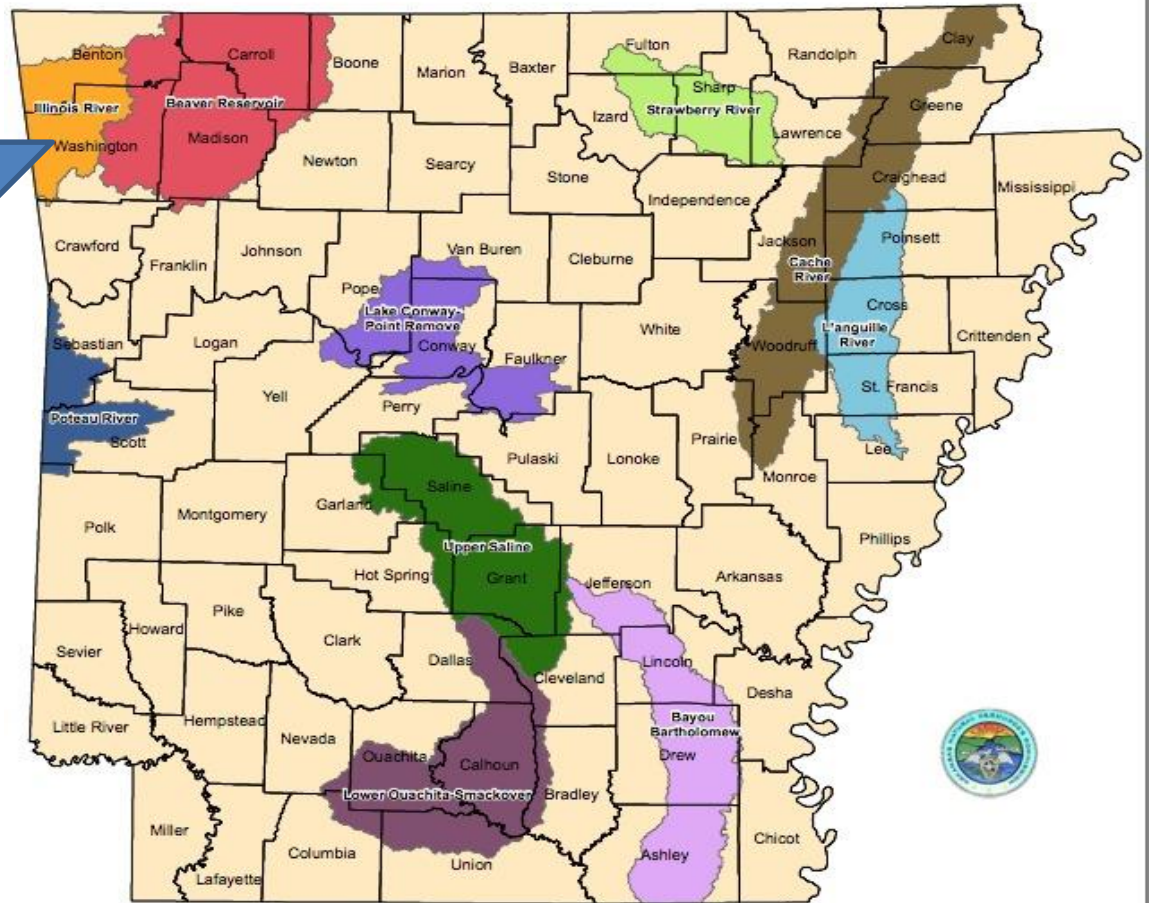
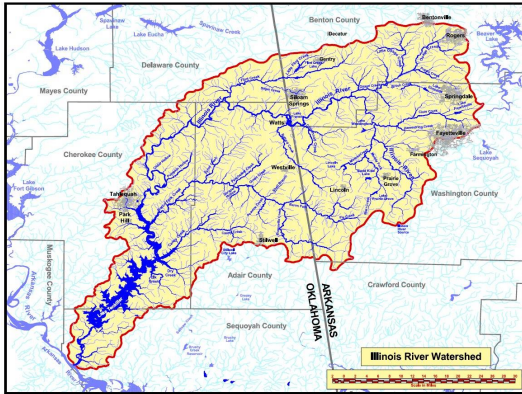
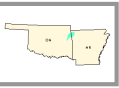
**Public Education
& Outreach**



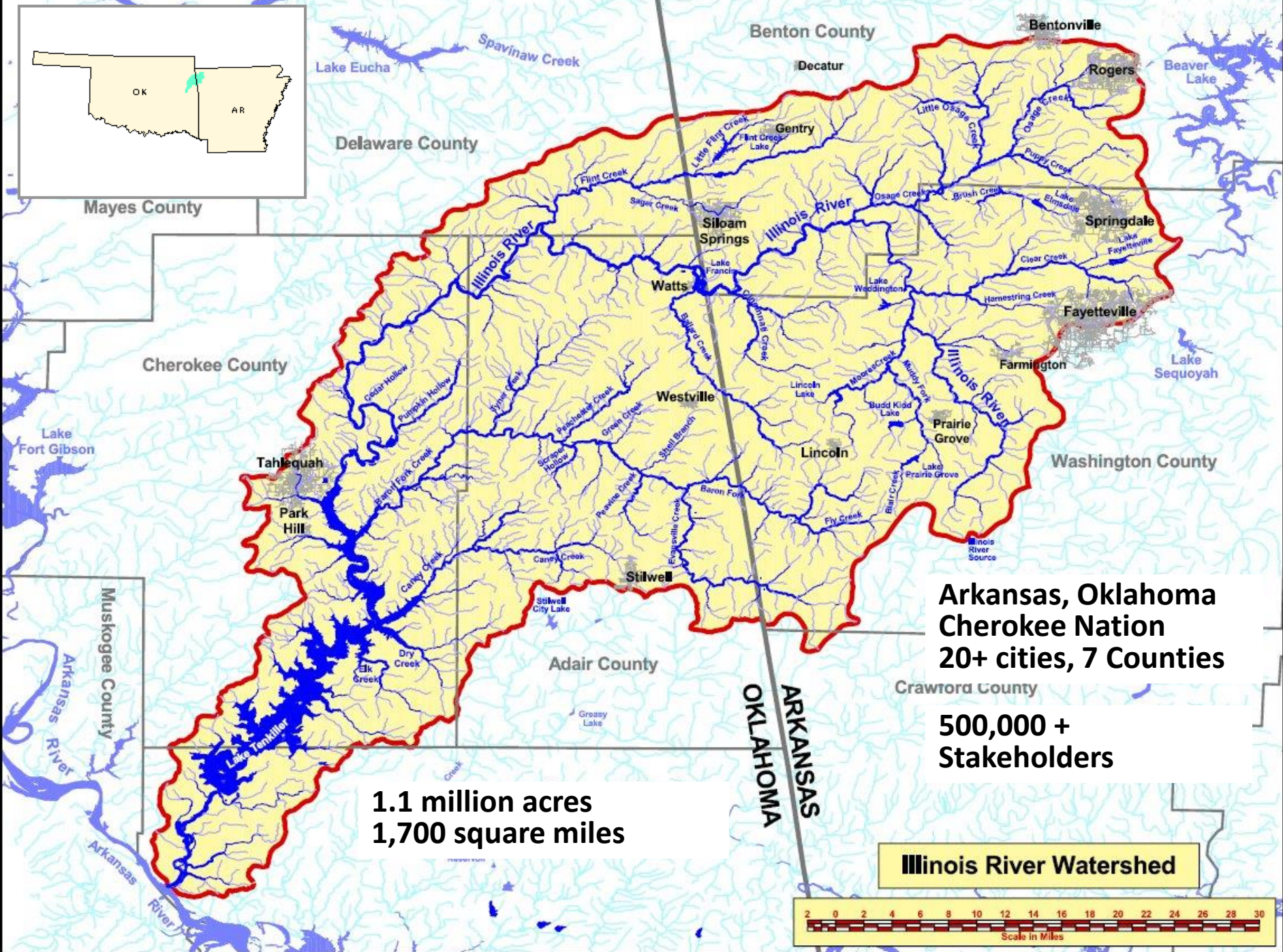
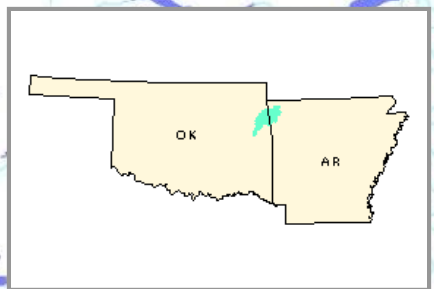
**Water Quality
Monitoring**



**Conservation &
Restoration
Projects**



AR Priority Watershed: 8 Digit HUC



Delaware County

Benton County

Mayes County

Cherokee County

Washington County

Adair County

Crawford County

1.1 million acres
1,700 square miles

Arkansas, Oklahoma
Cherokee Nation
20+ cities, 7 Counties

500,000 +
Stakeholders

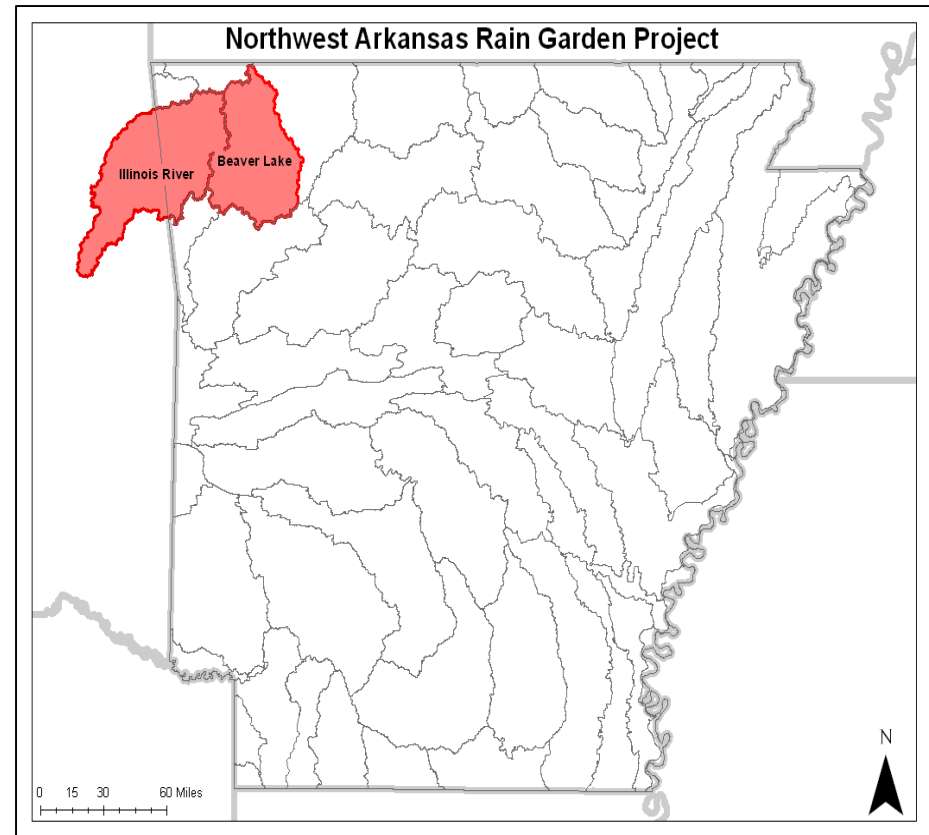
Illinois River Watershed





GOALS (2011-2014)

- **Solicit applications from Urban Public Spaces**
 - Schools
 - Churches
 - Parks
 - Trails/Greenways
- **Train 300 People**
- **Install 60 Rain Gardens**
- **Monitor 12 Rain Gardens**
- **Institutionalize RG as BMP**



Rain Garden Project Overview



1200 ft² Roof = 35,904 gallons/year

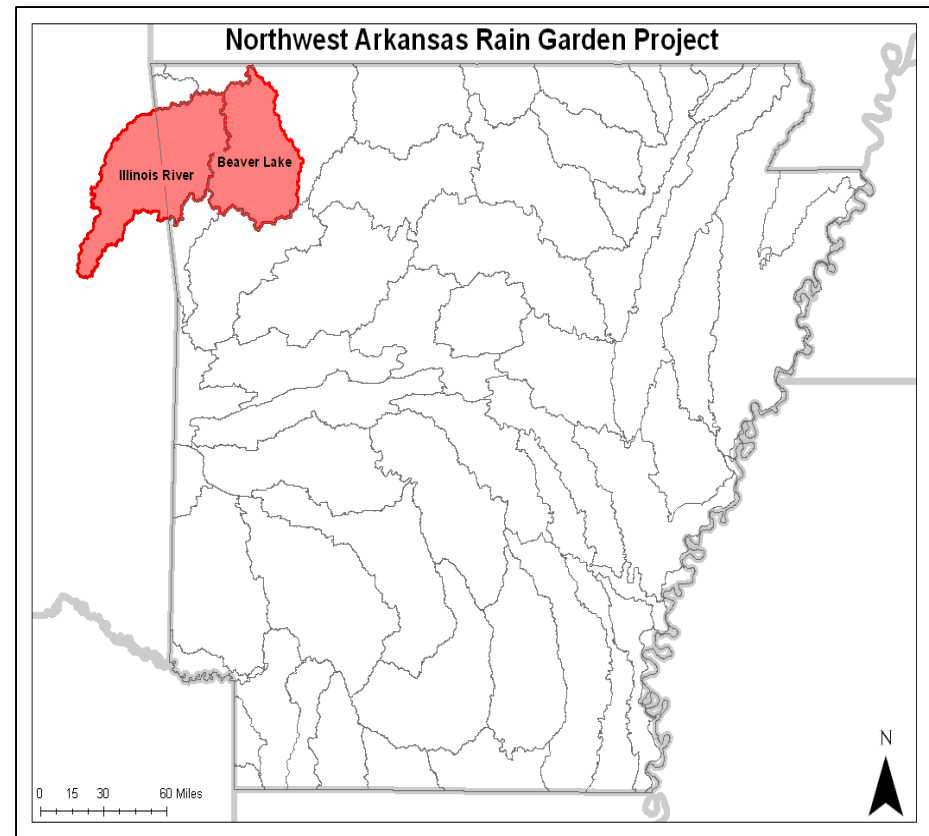
**400 SF Rain Garden:
90% or 32,313 gallons/year!**





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Rain Garden Project Overview



Process:

- Grant Application process
- Site visits, assessments, technical assistance
- Worked closely with Applicant
- 75% Funding towards RG cost
25% Match by Applicant
- 5 Year Commitment



**Rain Garden Project
Grant Application**
General Information:

Organization:	
Contact Name:	Email:
Office Phone:	Cell Phone:
Property Address (where rain garden can be located):	
City, State:	Zipcode:
Type of Organization: School Church Municipality Quasi-public/Other	
How did you hear about the Rain Garden Grant?	
Where do you plan to locate your rain garden on the property? <small>Example: Front entrance</small>	
What type of impervious service will be draining to the garden? <small>Please circle as many as needed</small>	
Roof	Driveway Parking Lot Other
Please indicate potential dates for rain garden installation:	
What materials, equipment & labor can you provide for the installation? <small>Est) Do you have access to mulch? Compost? Backhoe?</small>	
Do you have a standing water problem? Y N	
Do you have an erosion problem? Y N	
Would you allow the Rain Garden Project team to monitor water quality in the rain garden: Y N	
Have you attended a Rain Garden Academy? Y N	
Briefly describe why your organization would like a rain garden:	
Signature:	Date:

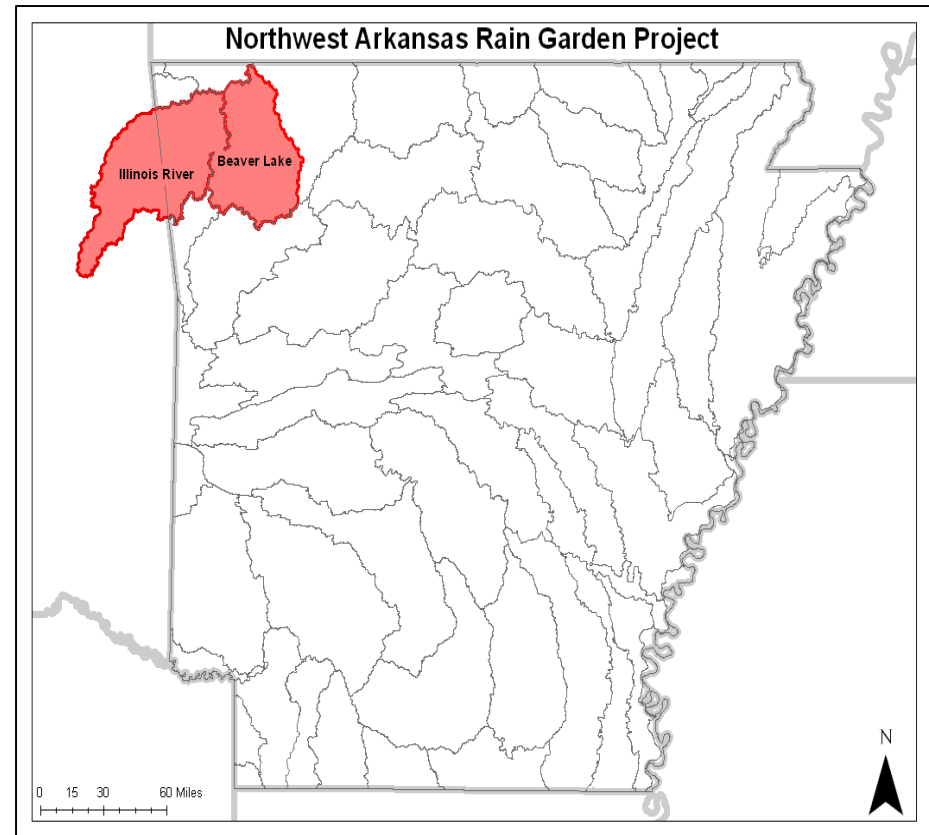
I verify that all of the information provided above is true to the best of my knowledge and understand that completion of this application does not guarantee the financial assistance of a rain garden by the NWA Rain Garden Project.

4



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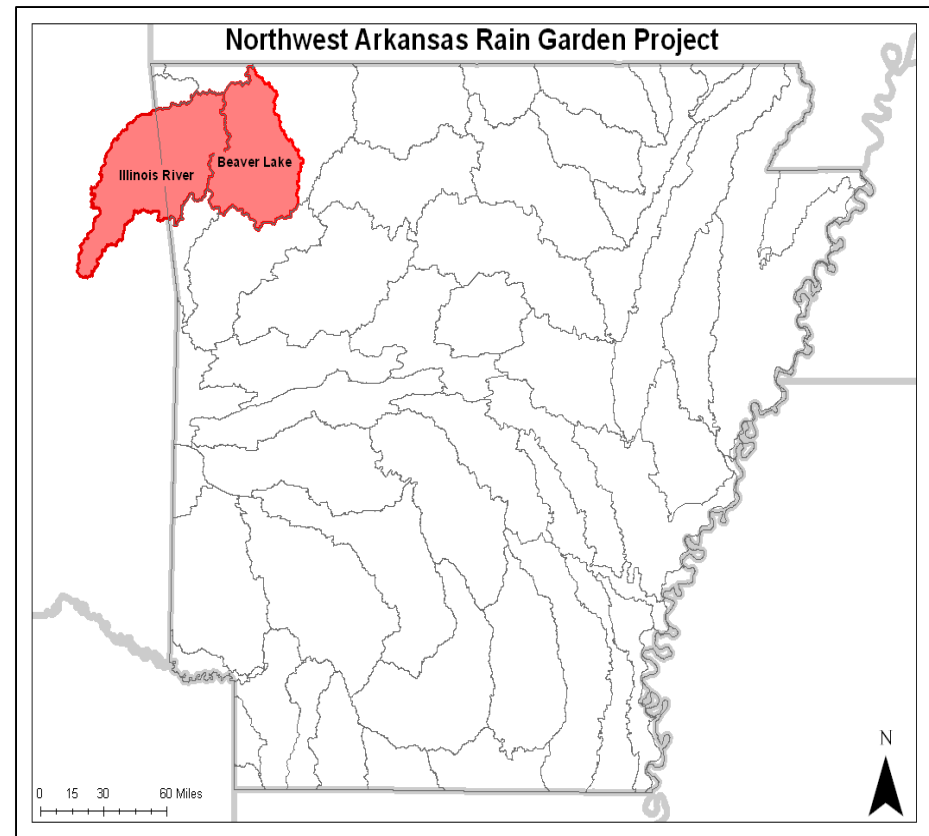
Training:

- 6 Rain Garden Academies + Tour
Fall & Spring
- 50 Attendees at each, 300 total



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Rain Garden Project Overview





Illinois River Watershed



Beaver Lake Watershed



Monitored Rain Gardens in the Beaver Lake and Illinois River Watersheds

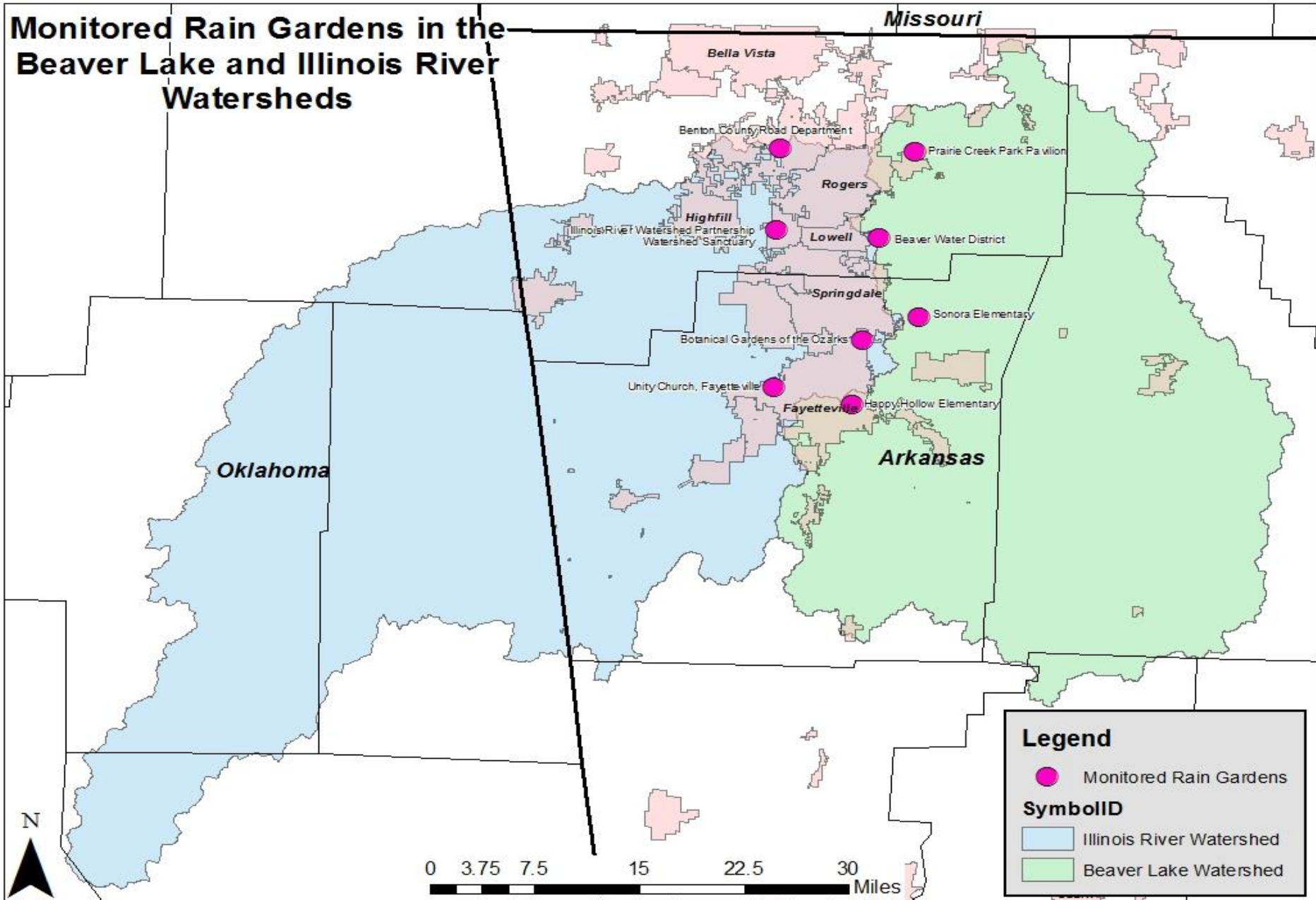
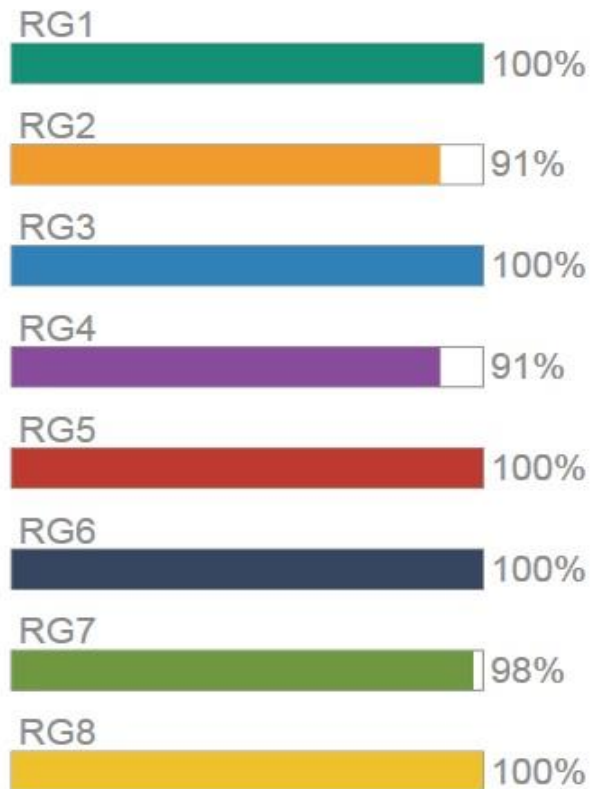


Figure 1 Map of the monitored rain gardens in the Beaver Lake and Illinois River watersheds as part of grants 11-300 and 11-400. Source: BWD 2014



98% Retention

1,446,216 Liters = **382,049 Gallons**
of water captured



96% Nitrogen Reduction

95% Phos. Reduction

87% TSS Reduction



Project Totals for IRW:

74,228 SF Impervious area treated

16,874 SF Rain gardens installed

4,458 Native Plants in the ground



Project Totals for IRWP:

1,898 Volunteers participated (total)

7,242 RG Education/Outreach hours logged for IRW





**Horsebarn Trail
Rogers, Ark.**

Rain Garden Project





Horsebarn Trail Rain Garden Tour, Rogers



ILLINOIS River

Randall G Lynch MS, Farmington

ILLINOIS River
WATERSHED PARTNERSHIP



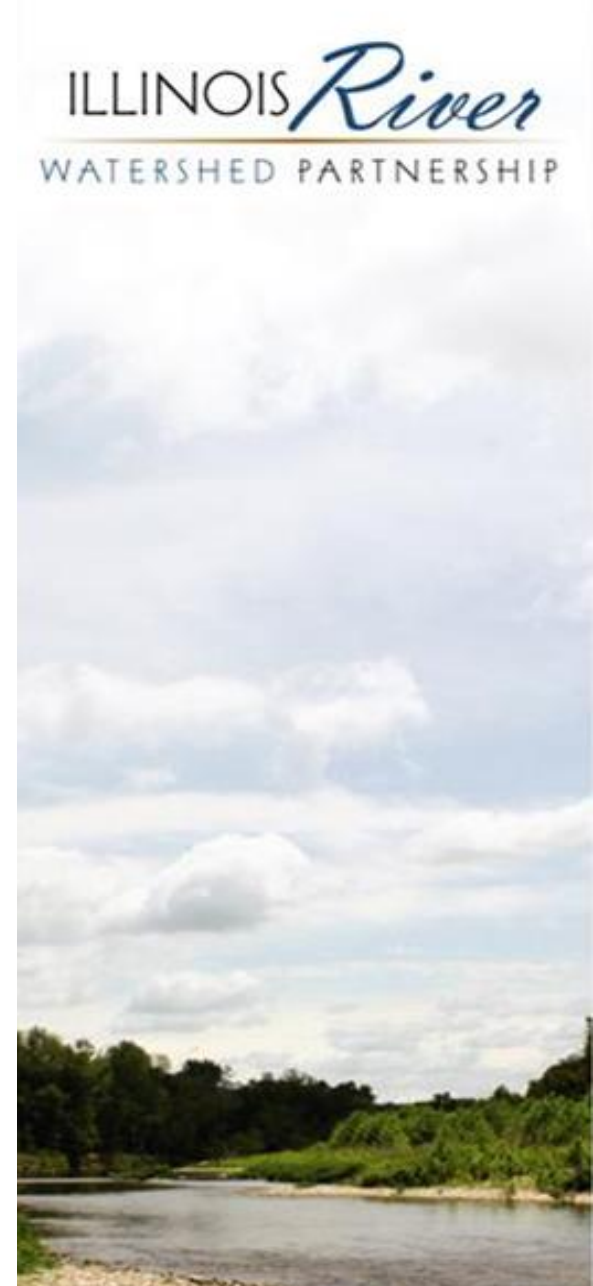
John Brown University, Siloam Springs





Helen Tyson Middle School, Springdale

ILLINOIS *River*
WATERSHED PARTNERSHIP



Trinity Church, Fayetteville



Cave Springs Community Building, Cave Springs



Bentonville Public Library, Bentonville





Bentonville Public Library, Bentonville





Prairie Grove Sr. Center, Prairie Grove



Springdale Airport, Springdale



Springdale Airport, Springdale



Springdale Airport, Springdale



Wilson Park Trailside, Fayetteville



Benton County Environmental, Bentonville





Lincoln Elementary, Lincoln

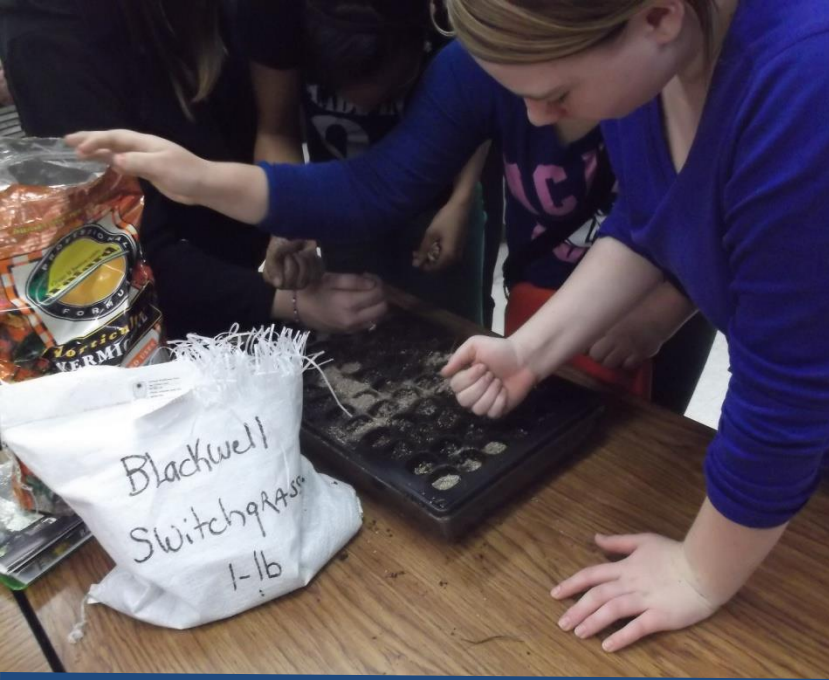




Siloam Springs White Water Park: Trailside Rain Garden



IRWP Watershed Learning Center, Cave Springs



Extensions: Growing Conservation

Illinois River Green Infrastructure

Illinois River Watershed Partnership Rain Garden Projects



Green infrastructure is an approach that communities can choose to maintain healthy waters, provide multiple environmental benefits and support sustainable communities. Unlike single-purpose gray stormwater infrastructure, which uses pipes to dispose of rainwater, green infrastructure uses vegetation and soil to manage rainwater where it falls.

By weaving natural processes into the built environment, green infrastructure provides not only stormwater management, but also flood mitigation, air quality management, and much more. (US EPA)



Rain Garden Project Locations

- Bentonville, AR**
1. Benton County Boys and Girls Club
 2. Benton County Planning & Environmental
 3. Bentonville Public Library
 4. Benton County Road Dept.
 5. Benton County Solid Waste Dept.
 6. Compton Gardens
 7. Crystal Bridges/ "A" St. Trailhead
- Rogers, AR**
8. Downtown Rogers
 9. Horsebarn Trailhead
 10. Murphy Dog Park
 11. Northwest Arkansas Community College
 12. St. Mary's Center for Non-Profits

- Fayetteville, AR**
28. Butterfield Trail Elementary
 29. Gully Park
 30. Holt Middle School
 31. Leverett Elementary
 32. Sunshine House Pre-K
 33. Tri-cycle Farms
 34. Trinity United Methodist Church
 35. Unity Church
 36. Westside Water Treatment Plant
 37. Wilson Park

- Farmington, AR**
38. Randall G. Lynch Middle School
- Prairie Grove, AR**
39. Senior Center

- Lincoln, AR**
40. Lincoln Elementary
 41. Lincoln High School

- Cave Springs, AR**
13. Community Building
 14. IRWP Watershed Sanctuary
- Siloam Springs, AR**
15. White Water Recreation Park
 16. John Brown University
 17. Public Library

- Springdale, AR**
18. Bernice Young Elementary
 19. Botanical Gardens of the Ozarks
 20. Helen Tyson Middle School
 21. Murphy Park
 22. Shaw Elementary
 23. Springdale Airport
 24. Springdale Public Works
 25. T.G. Smith Elementary
 26. Walker Elementary
 27. Westwood Elementary

The Illinois River Watershed Partnership works with Cities, Counties, Schools and Public Facilities to implement Green Infrastructure demonstration projects to educate and train stakeholders in improving and protecting the Illinois River Watershed.



Shaw Elementary, Springdale, AR



IRWP Watershed Sanctuary, Cave Springs, AR



Butterfield Trail Elementary, Fayetteville, AR



Horsebarn Trailhead, Rogers, AR



Northwest Arkansas Community College, Rogers, AR

Illinois River Watershed Partnership
www.irwp.org
contact@irwp.org



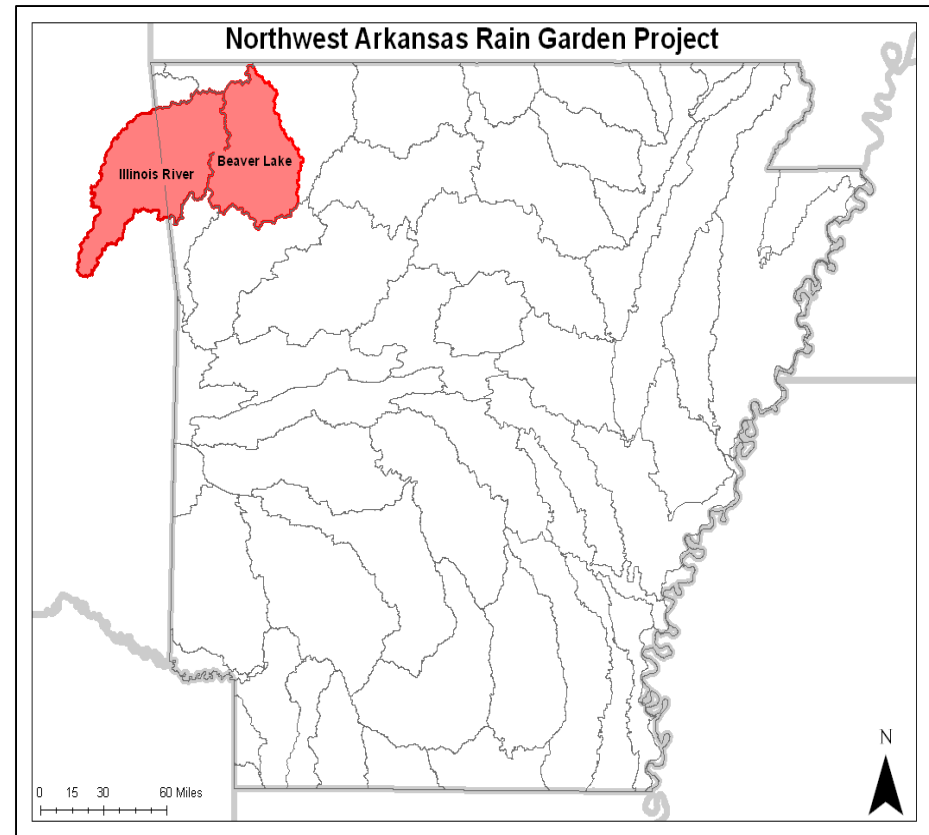
Rain Garden Map





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LID Adoption, Fayetteville AR (LID Ordinance Chapt.179)

ROGERS
— A R K A N S A S —

WHERE POSSIBLE LIVES

DRAINAGE MANUAL



2012

Rogers, AR 2012
Fayetteville, AR 2013
Bella Vista, AR – coming

TSS FOCUS

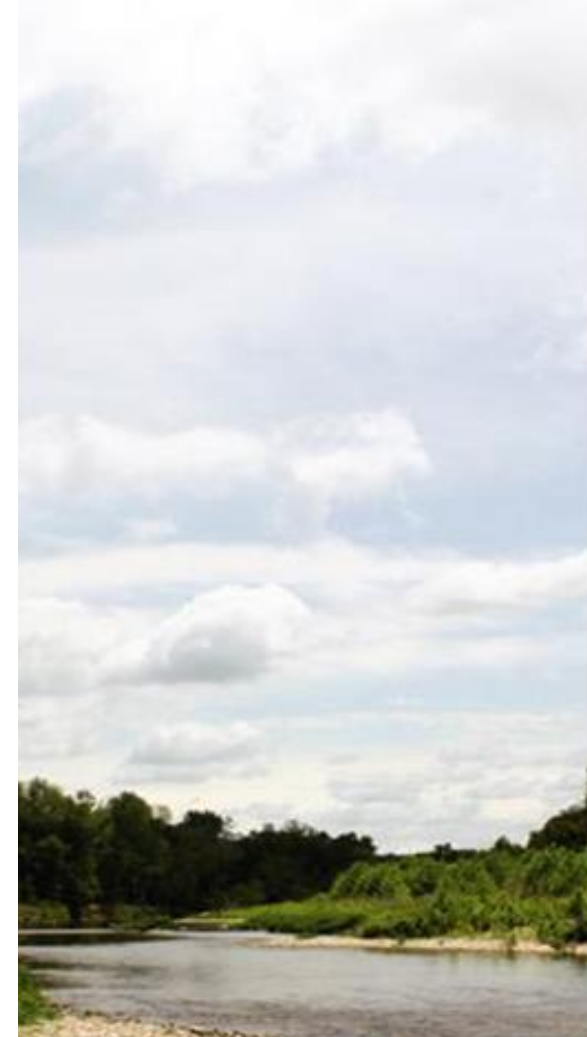
City Drainage Criteria Manuals Updated/ In Progress

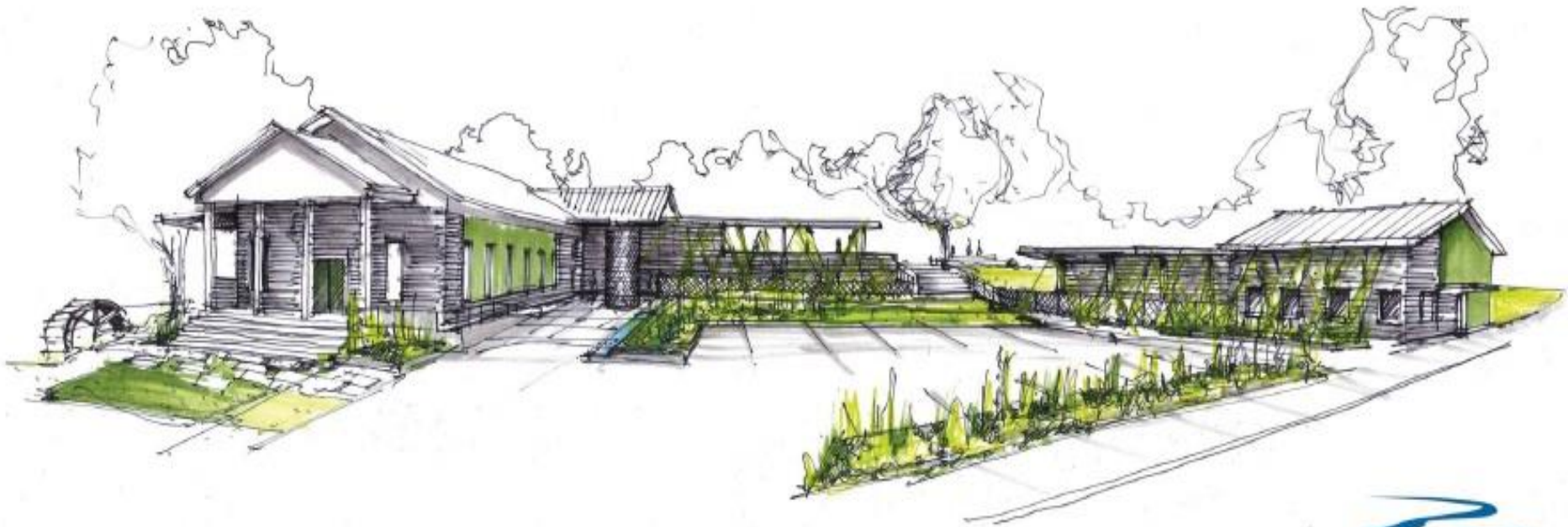
Current Waiting List:

WAC/AMP	Rogers	
Mathais Elementary	Rogers	
Rogers Library	Rogers	
Har-ber High School EAST	Springdale	
Unitarian Universalist	Fayetteville	
Benton County Public Service Bldg	Bentonville	
Life Styles	Fayetteville	
OMNI	Fayetteville	
Rolling Hills Baptist Church	Fayetteville	
Jones Center	Springdale	
J.O. Kelly Elementary	Springdale	
Rogers Historical Museum	Rogers	
Downtown Rogers	Rogers	FALL 2014
Murphy Dog Park	Rogers	FALL 2014

Outside Interest:

- **Chicago Sustainable Backyards**
- **Taiya Inlet Watershed Council in Skagway, Alaska**
- **Corporate Rain Gardens**





Illinois River Watershed Partnership
[Watershed Learning Center]

modus studio
architecture + prototyping



