Connecting NPS Management to Receiving Streams through BMP Education and Demonstration

#15-900

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County Agent – Ag & Water Quality
Washington County
UA System Division of Agriculture Cooperative Extension
Objectives


• Increase public awareness of storm drain infrastructure and urban non-point source pollutant impacts on water quality

• Connect land-use actions to water quality of receiving streams through public engagement
Implementation Methods

- Storm drain inlet filter demos
- Whisker demos
- LID demonstrations
- Ballot Bins
NWA Storm Drain Filter Demonstrations

• this is an educational tool to provide awareness in a unique way – a different angle

• Show types of urban pollutants entering local creeks

• experiment with maintenance and demonstrate pre-treatment

U of A
DIVISION OF AGRICULTURE
RESEARCH & EXTENSION
University of Arkansas System
Locations

Fayetteville Entertainment District

Fayetteville – Walker Park – Public Library

Razorback Greenway

Springdale
Pollutant Filter Results
Whisker Demonstration

- Visualize pollutant path
- Connect drain to outfall
- Interactive engagement
Ballot Bins

- Interactive engagement
- “ownership” of action
- Social Media
- Tangible results
- Local demand for expansion
  - 10 additional bins for local businesses

“I have seen a marked improvement at the worst areas since the installation of the bins. Now that patrons recognize the shape and color, I feel the usage will continue to improve at additional locations.”
– Joey Lewis – Parking Maint.
Locals install ‘Ballot Bins’ to limit cigarette butt litter

Hi Colin,

Here are the latest stats on it. Totally amazing! I looked back as far as could look and this post exceeded the popularity of our former highest performing post by double! And that was when Emerald Ash Borer was first discovered. You’ve really got something special here. Thanks for what you’re doing.

80,357 people reached

What this doesn’t show is the actions (clicks) and that’s at 17,300, WAY over and above anything we’ve ever posted.

From: Kimberly Rowe
Sent: Friday, August 25, 2017 11:09 AM
To: Colin Massey
Subject: Re: Facebook post

Kimberly Rowe
Program Associate
UA
Fayetteville First Thursdays 2016 & 2017
Technology Transfer

Presentations:

• Washington Co. Cattlemen’s
• Dickson St. Merchant’s Assoc.
• Butterfield Trail Village
• Shiloh Museum Summer Camp
• Washington Elementary Summer Camp
• Fayetteville Kiwanis
• Arkansas Water Resources Conference & Walking Tour of 4 educational demos
• Fayetteville Lion’s Club
• Fayetteville Environmental Action Committee
Outreach & Engagement

Litter Removal:

- (3) Pack Rat Outdoor Center (Gregg St. & Sublett Creek)
- (4) UA Rock Camp Freshmen
  - (2) Urban Trails
  - (2) Urban Cigarette Butt
- (2) Make-A-Difference Day Cleanups
Fayetteville Entertainment District
Cigarette butt cleanups

2016 – 11 lbs
2017 – 13 lbs
August: University of Arkansas Rock Camp 2016 & 2017

“I would have never even thought about this as a problem had I not seen it myself” – Rock Camp Student
Low Impact Development Demonstrations

Washington County Cooperative Extension Service agent Katie Teague said, "This project is a great demonstration of green infrastructure and showcases the ways urban trees can not only provide shade, habitat and food for birds and beneficial insects, but also help with runoff filtration and stormwater uptake."

The hope behind the bioswale project is to promote public awareness and education. An interpretive sign will describe the function and benefits of the basin and its native trees to the high volume of residents visiting the recycling center. This sign will also be posted outside of the engineering office in city hall.

The design and construction also enhanced the technical skills of the Engineering and Public Works staff. Springdale leadership strives to improve the municipal stormwater management and pledges to use their employees to guarantee successful tree and plant establishment and maintenance of this bioswale. Maintenance includes watering (in times of no rain) mulching, and removal of silt and trash over time. City employees with various departments will use this educational tool during their annual stormwater training piloted by UACES.
Manage Runoff with Green Infrastructure

BIORETENTION DEMONSTRATION
This bioretention basin intercepts stormwater runoff from 1½ acres of Springdale Public Works’ property. The basin is planted with native trees, shrubs, grasses and perennials that filter potential pollutants from roofs, concrete pads, pavement and equipment in the yard. The plants take up more stormwater than the previously grassed area. In the bottom of the basin, a gravel-lined trench with an underdrain releases water slowly before it drains to Spring Creek, a major tributary in the Illinois River Watershed.

BENEFITS OF BIORETENTION
• Enhance water quality by filtering pollutants from stormwater
• Protect waterways from intense stormwater flows during storms
• Increase water infiltration and recharge groundwater supplies
• Reduce flooding and drainage problems
• Provide wildlife habitat for birds, butterflies and beneficial insects

GREEN INFRASTRUCTURE
Green Infrastructure reduces and treats stormwater at its source while delivering environmental, social, and economic benefits whereas conventional piped stormwater drainage systems (gray infrastructure) is only designed to move urban stormwater away from the built environment.

Green infrastructure techniques include:
Urban Trees, Bioretention, Green Roofs, Permeable Pavements, Rain Gardens, Bioswales, Rain Barrels and Cisterns, Land Conservation

WHAT YOU CAN DO
You can help manage stormwater runoff at home by using these techniques that collect, slow and spread rainfall to help in soak in closer to where it falls:
• Plant native trees that thrive on typical rainfall
• Redirect downspouts onto grasses areas
• Use decks, pavers or mulch to provide open spaces for rain to soak in
• Install and use rain barrels
• Establish rain gardens

Some Plants Used In This Bioretention Basin

This project is supported in part by the Arkansas Forestry Commission’s Urban Forestry Program and the U.S. Forest Service.
Upcoming for 2018

- Implement LID demonstration in Fayetteville
- Finalize pollutant path video media
- Complete match requirements

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<tr>
<td>Total Hours</td>
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Goal Difference

$57,359.00 | $19,385.78
Project Partners

- Engineering - Utilities
- Transportation & Public Works
- Parks and Recreation
- Office for Sustainability and Resilience
- GIS

Vendors

- Planning & Community Development (Engineering)
- Public Works
- Water Utilities