

# 2014 Green Infrastructure Webcast Series

## *Green Infrastructure and Smart Growth*

Wednesday, September 3rd, 2014

1:00 – 2:30pm EST

### Speakers:

- **Melissa Kramer**, Senior Policy Analyst, EPA's Office of Sustainable Communities
- **Caran Curry**, Interim Assistant City Manager, City of Little Rock, AK
- **Heather Nix**, Clean Air & Water Program Director, Upstate Forever, Greenville, SC
- **Erika Hollis**, Clean Air & Water Project Manager, Upstate Forever, Greenville, SC

Sponsored by U.S. EPA Office of Wastewater Management

# Logistics

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  - Call **GoToWebinar** support:[1-800-263-6317], and give conference ID# 829-823-872

# Webcast Agenda

- **Introduction**
- **Greening America's Capitals**  
Melissa Kramer, Caran Curry
- **Improving Water Quality Using Compact Development and Smart Growth Techniques**  
Heather Nix, Erika Hollis
- **Q&A session**
- **Wrap up**



Now to our speakers!

# EPA's Greening America's Capitals Program

Melissa Kramer

U.S. EPA Office of Sustainable Communities





# Program Background

- Established in 2010
- Goal: Illustrate what a sustainable community can look like to catalyze implementation
- Project areas:
  - State capital cities
  - Neighborhoods, business corridors, plazas, or other smaller, well-defined areas
  - Highly visible
  - Replicable



# Process

- EPA invites mayors to apply
- Multi-agency review panel selects cities
- EPA create scope of work from city's proposal
- EPA hires a design team (small business)
- Design team conducts charrette with stakeholders
- EPA presents final design report to the city
- The city implements the vision...we hope





# Capital Cities

## 2010

Boston, MA  
Hartford, CT  
Charleston, WV  
Little Rock, AR  
Jefferson City, MO

## 2011

Washington, DC  
Lincoln, NB  
Montgomery, AL  
Jackson, MS  
Phoenix, AZ

## 2012

Helena, MT  
Frankfort, KY  
Indianapolis, IN  
Baton Rouge, LA  
Des Moines, IA

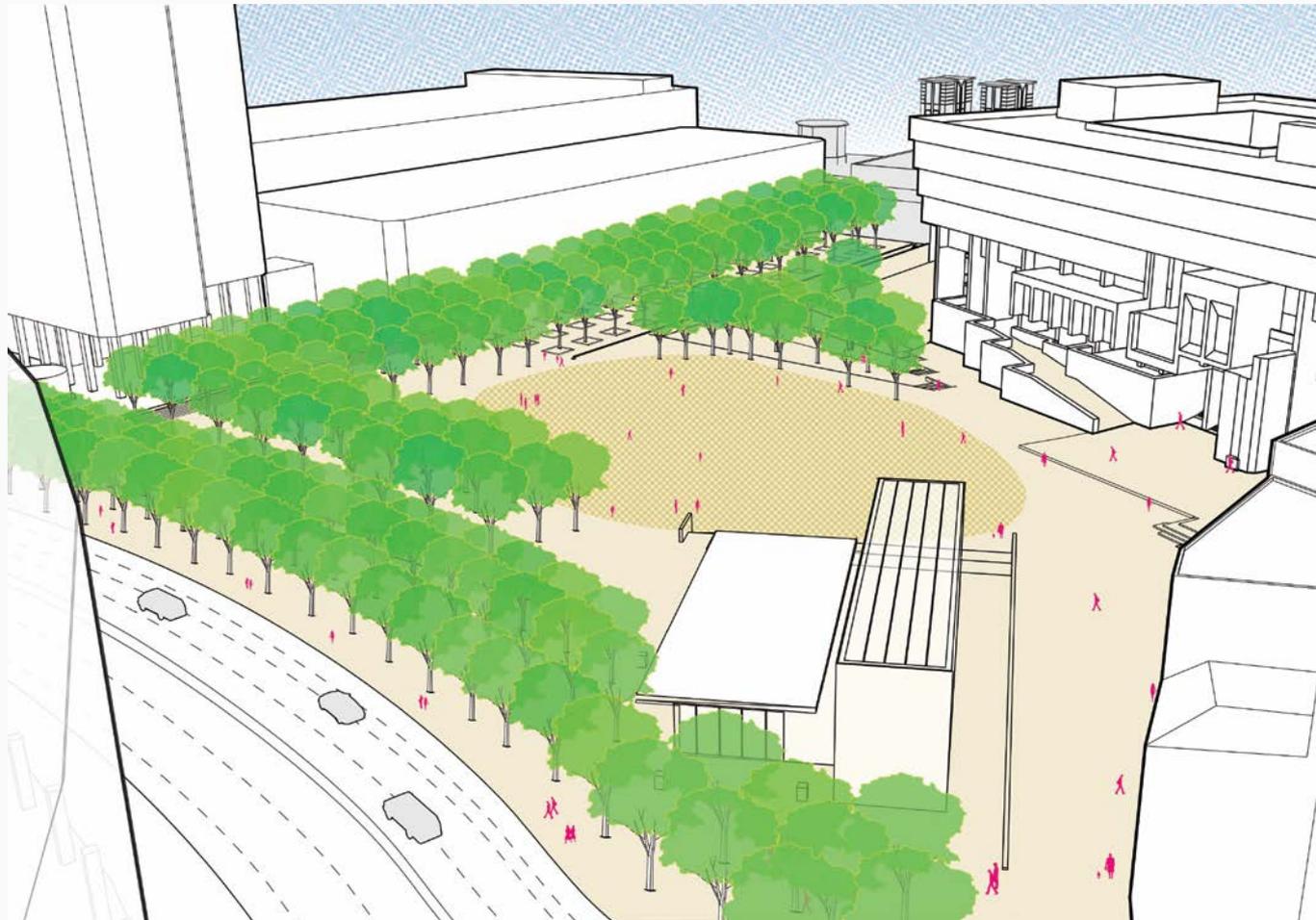
## 2013

Lansing, MI  
Madison, WI  
Montpelier, VT  
Olympia, WA



# Boston, MA: City Hall Plaza

## Utile





# Hartford, CT: Capitol Avenue

Nelson Byrd Woltz





# Charleston, WV: Slack Plaza

Origin4Design





# Little Rock: Main Street

Nelson Byrd Woltz





# Jefferson City, MO: Wears Creek

BNIM/Spectrum





# Washington, DC: Anacostia Metro Station Area

Parker Rodriguez/ZGF





# Montgomery, AL: Selma to Montgomery National Historic Trail

2D Studio





# Lincoln, NE: South Capitol Area

Vireo/BNIM





# Jackson, MS: Congress Street

Jeffrey Carbo Landscape Architects







# Des Moines, IA: 6<sup>th</sup> Avenue

Vireo/BNIM





# Helena, MT: Last Chance Gulch

CD+A/RainWorks





# Baton Rouge, LA: Downtown Greenway

Spackman Mossop Michaels





# Indianapolis, IN: City County Building Plaza

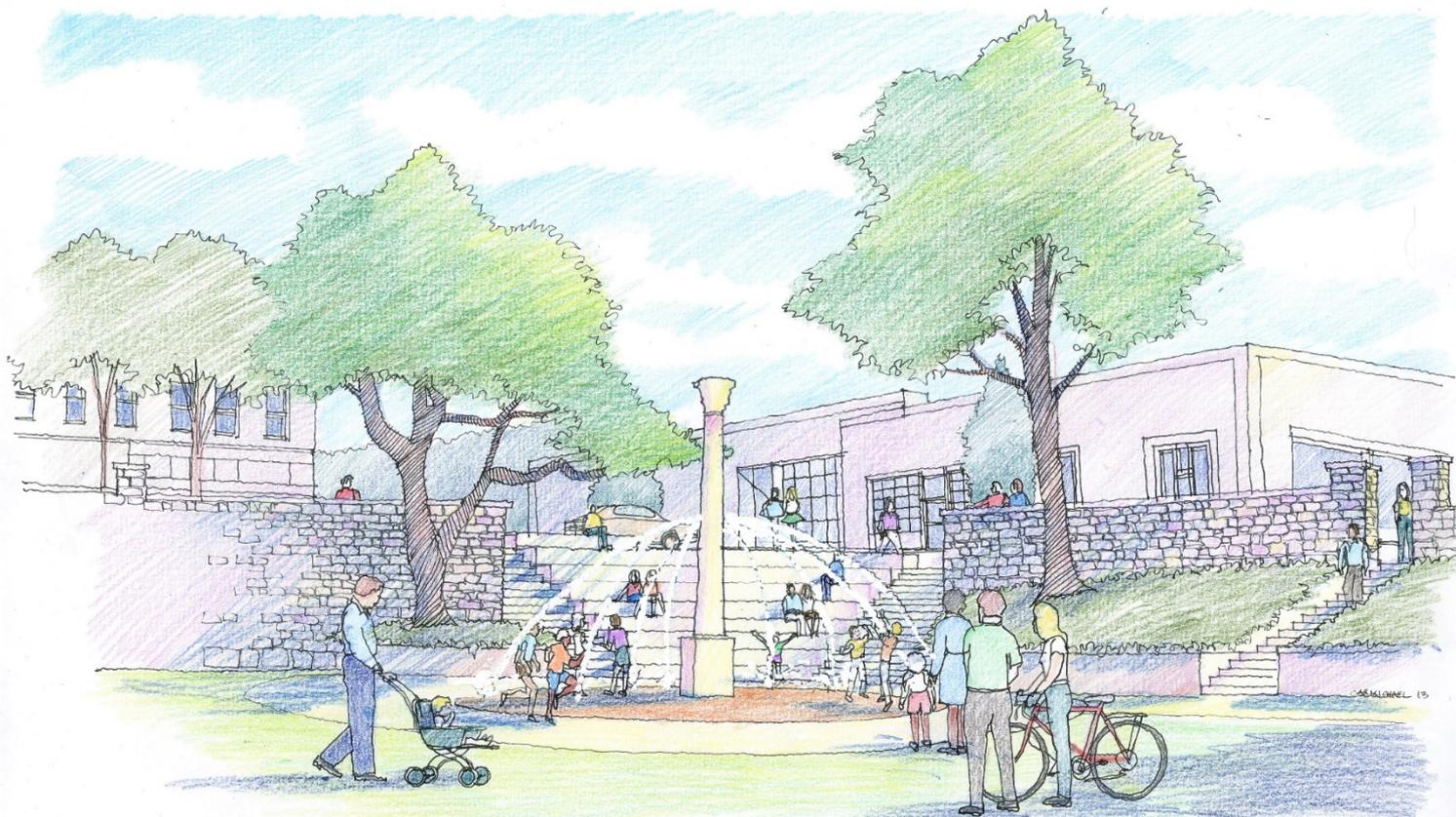
Origin4Design





# Frankfort, KY: Second Street

ParkerRodriguez/Carmen





# Results

- **Little Rock** received a \$150,000 grant from NEA, \$900,000 from EPA for green infrastructure, \$900,000 from Pulaski County Brownfields, and \$1.2 million from the city.
- **Boston** invested \$100,000 for detailed design and construction drawings.
- **Charleston** received a \$650,000 DOT grant for Slack Plaza redesign.
- **Lincoln** invested \$950,000 of HUD CDBG funds and completed phase one construction.
- **Baton Rouge** secured \$250,000 to begin detailed design of the Downtown Greenway and \$100,000 for construction on first section of the trail.
- **Phoenix** spent \$575,000 to complete the first phase of road diet and bike lanes for Grand Avenue.
- **Montgomery** spent \$1.3 million of local funds to implement trail improvements.
- **Frankfort** received \$400,000 EPA Brownfields Assessment Grant and spent \$30,000 in local funds for engineering of intersection improvements.



[www.epa.gov/smartgrowth/greencapitals.htm](http://www.epa.gov/smartgrowth/greencapitals.htm)



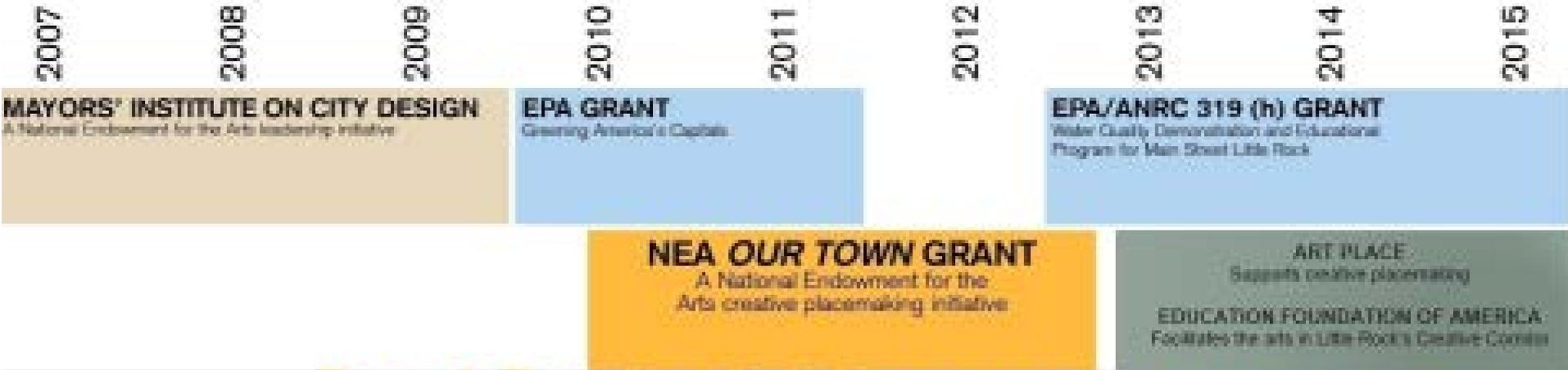
# CARAN CURRY

City of Little Rock

Green Infrastructure Webcast:  
Greening Initiative & Smart Growth



# CREATIVE CORRIDOR INITIATIVES Stakeholder Participation



Reed Realty Advisors  
 Doyle Rogers Company  
 Consortium of Visual Artists  
 Arkansas Symphony Orchestra  
 Downtown Partnership  
 Metroplan  
 Arkansas Historic Preservation Program  
 East Harding Construction  
 Arkansas Building Authority  
 Stephens Inc.  
 Arkansas Building Reconciliation  
 LR Convention & Visitors Bureau  
 RAO Property Owner  
 WD&D Architects  
 Ballet Arkansas  
 KATV  
 Arkansas Repertory Theatre  
 Arkansas Teacher Retirement System



# Our Story, Challenges, and Tips

# Little Rock

Population: 200,000

Metropolitan Statistical  
Area: 724,385 est.

**Named #1 Kiplinger's  
Best Place to Live in  
2013**







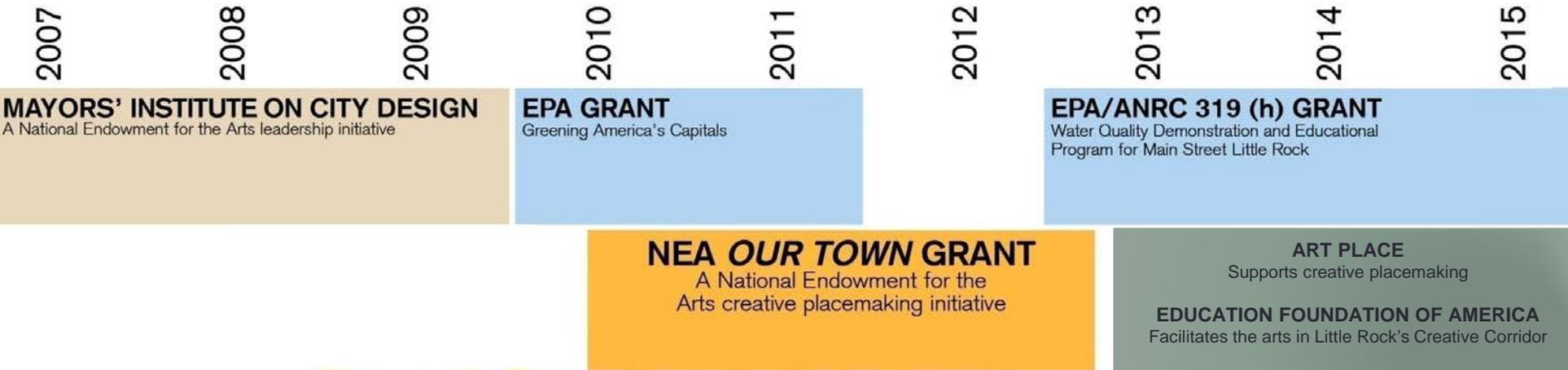


**Parking is now the city's single largest land use.**

**Closing the street to traffic for pedestrian use exclusively is not the answer.**



# CREATIVE CORRIDOR INITIATIVES Stakeholder Participation



Reed Realty Advisors Arkansas Building Authority  
 Doyle Rogers Company Wig Shop Property Owner Stephens Inc.  
 Consortium of Visual Artists Donaghey Building Representatives  
 Arkansas Symphony Orchestra  
 Moses Tucker Real Estate LR Convention & Visitors Bureau  
 Downtown Partnership RAO Property Owner  
 Military Surplus Property Owner WD&D Architects Patels Property Owner  
 Metroplan Old Men's Store Property Owner Ballet Arkansas  
 Arkansas Historic Preservation Program Mr. Cool Property Owner  
 Arkansas Arts Center KATV Centre for the DansArts  
 East Harding Construction Arkansas Repertory Theatre  
 Arkansas Teacher Retirement System

# 2009 Mayor's Institute Charrette



Mayors' Institute on City Design

2101 L Street NW, Suite 670

Washington, DC 20037

T 202.463.1390

E [info@micd.org](mailto:info@micd.org)



# GREENING AMERICA'S CAPITALS

## LITTLE ROCK, ARKANSAS





## STREETSIDE RAIN GARDEN

The rain gardens along Main Street would detain and filter stormwater runoff before the water flows into the eventual stormwater outfall into the Arkansas River. Slowing down the water and allowing it to infiltrate into the ground would mean the city would not need to expand drainage pipes along Main Street. The rain gardens would also provide more greenery on the street and could include educational signs about how runoff from buildings and streets affects natural water systems. The rain gardens could be planted with native plants, such as the *Eupatorium maculatum* (Joe-Pye Weed), *Camassia leichlinii* (Camas Flower) and *Juncus effusus* (Soft Rush) shown in Figure 45, that are well adapted to urban conditions and fluctuations in water levels. They are also attractive in multiple seasons and easy to maintain.

## TROLLEY

Expanding the existing trolley route to Main Street is another way to create a pedestrian-friendly Main Street that also helps the city meet its environmental goals. It gives people choices besides driving, and links walkable destinations with public transit.



**More information on Greening America's Capitals is available:**

<http://www.epa.gov/smartgrowth/greencapitals.htm>



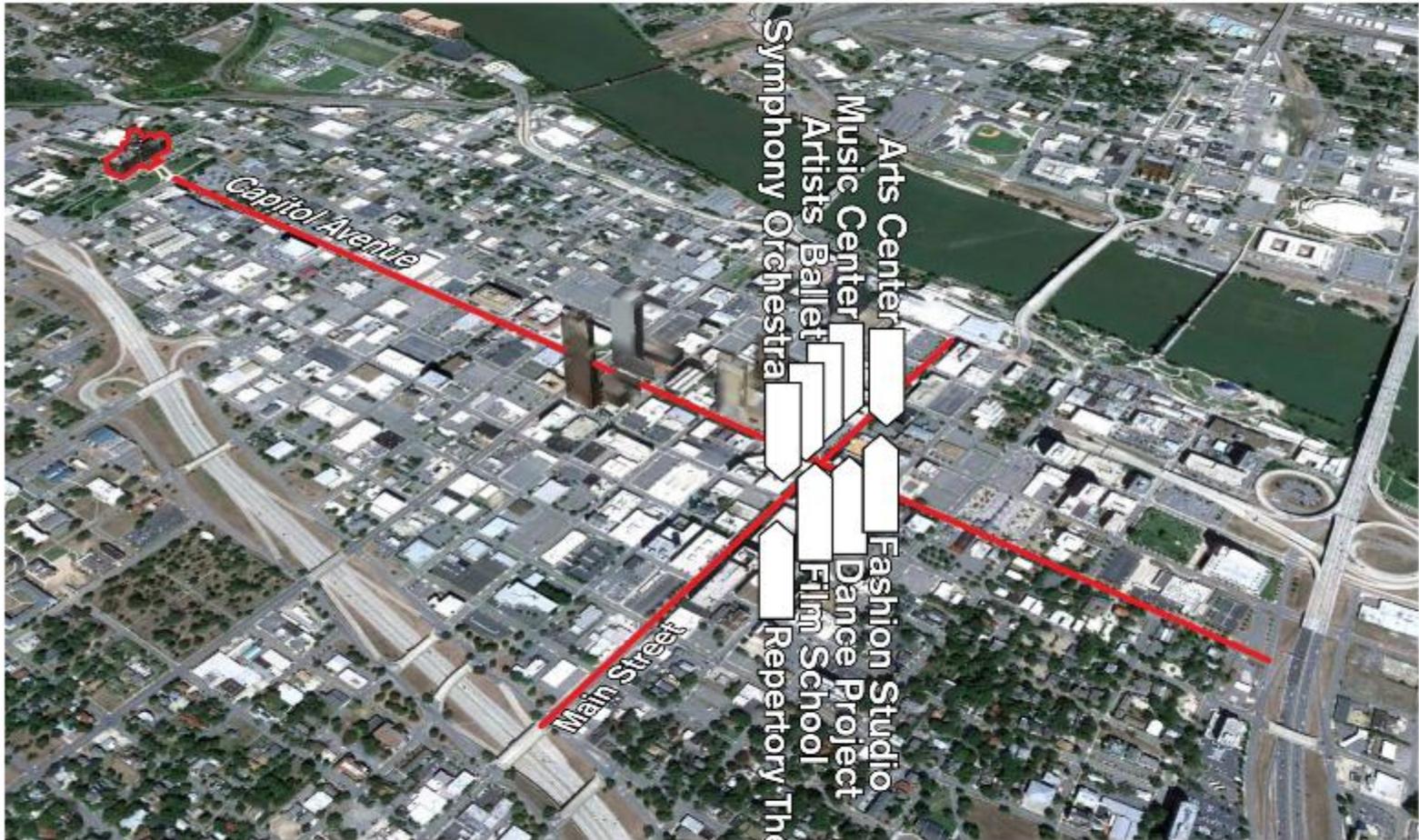
**NELSON  
BYRD  
WOLTZ**  
LANDSCAPE  
ARCHITECTS

# CREATIVE CORRIDOR

A Main Street Revitalization



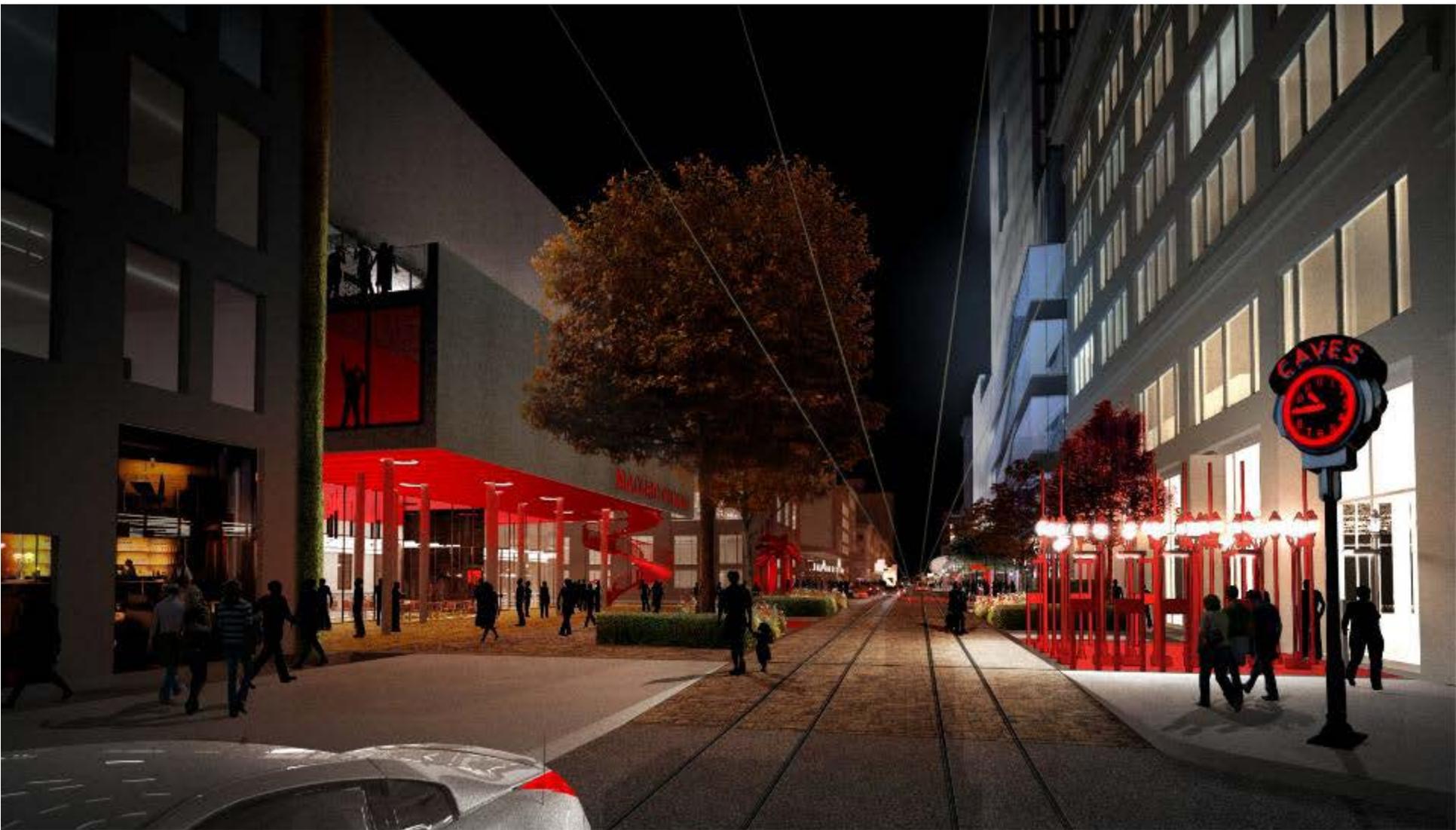
University of Arkansas Community Design Center + Marlon Blackwell Architect  
for  
The City of Little Rock



Aggregated Creative Corridor

Given the new mix of uses dominated by the cultural arts and residential, Main Street must be livable after work hours — 24/7.







# MAIN STREET STRATEGIES

## CONNECT RIVERMARKET, DOWNTOWN + SOMA

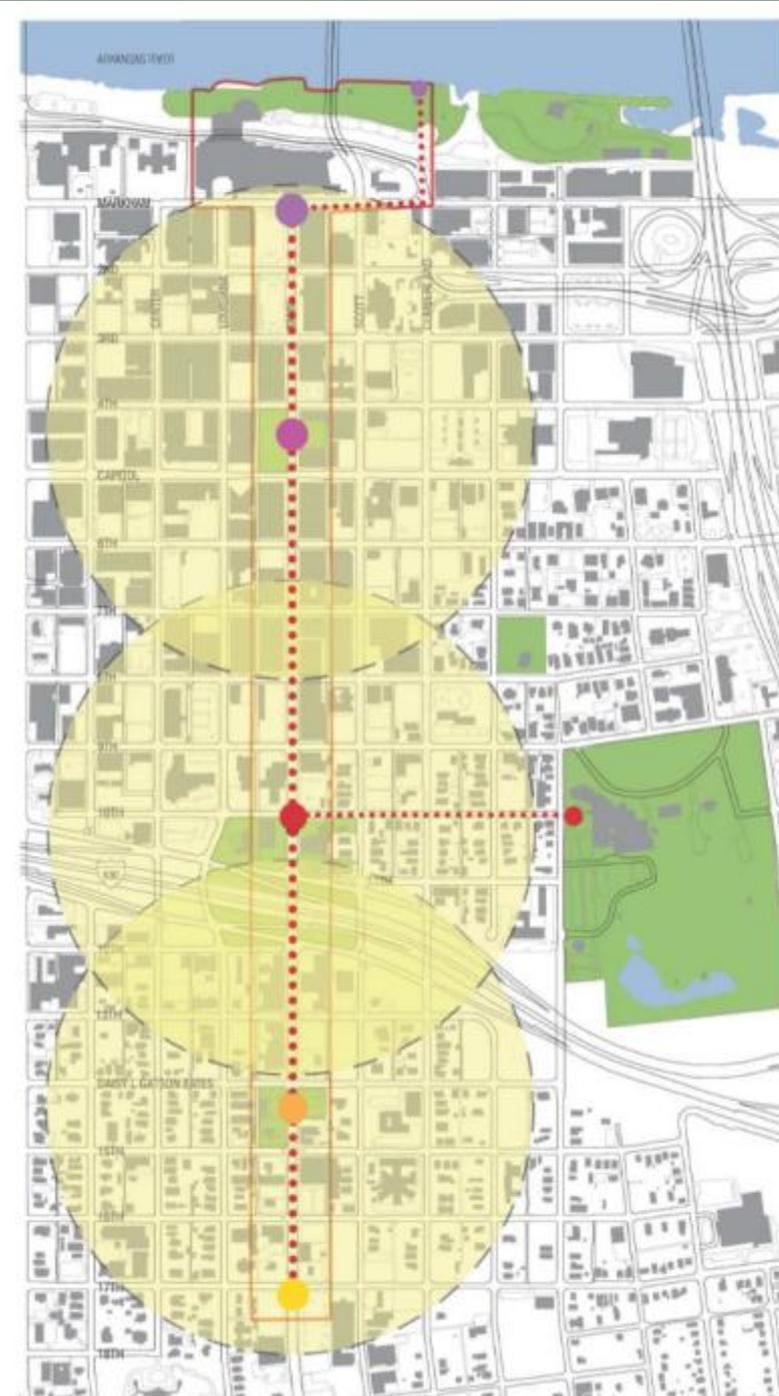
- New attractions center on nodes 5 minute walks apart
- A common identity for entire length of Main Street

## GREEN STREETS

- Rain gardens with native plantings
- Street trees (urban-tolerant, native, provide shade)
- Green roofs
- Downspouts linked to rain gardens
- Porous parking

## PEDESTRIAN, BIKE AND TRANSIT EXPERIENCE

- Reduced ambient air temperature through use of rain gardens and street trees.
- New crosswalks.
- A shaded sidewalk on the I-630 overpass.
- A bike route on a parallel street (to be determined) and more bike racks on Main Street.
- An expanded trolley route along Main Street.





# Water Quality Demonstration & Educational Program for Main Street Little Rock

Nonpoint Source Management  
(319) Program

Total Project Cost \$1,578,959

Federal \$900,000

City of Little Rock \$678,959  
(Cash & Inkind)

# Demonstrate Benefits of

- **Low Impact Development**

- **Porous Pavers**

- **Tree Wells**

- **Rain Gardens**

- **Water Filtration**



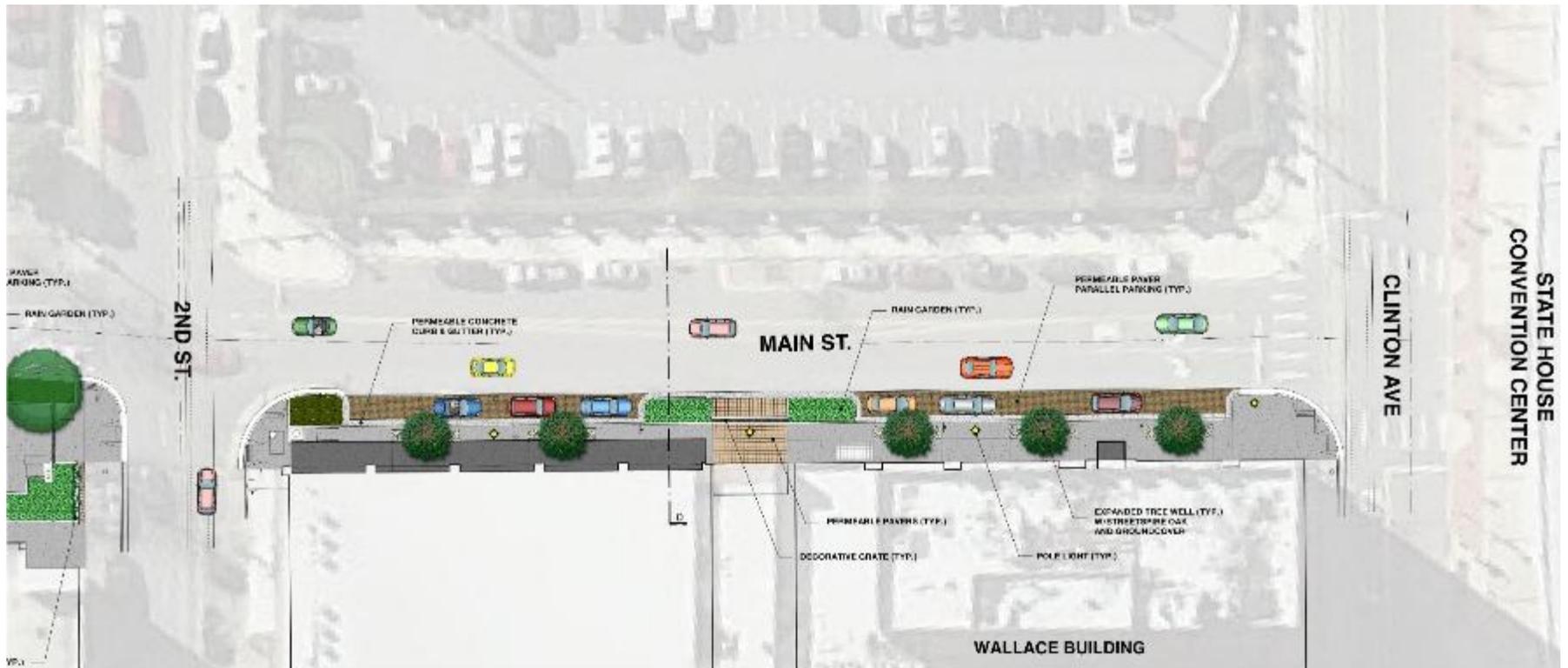
# Rain Gardens, Permeable Concrete and Columnar Trees



Permeable  
Pavers and  
Vegetative  
Filter to  
Rain  
Garden



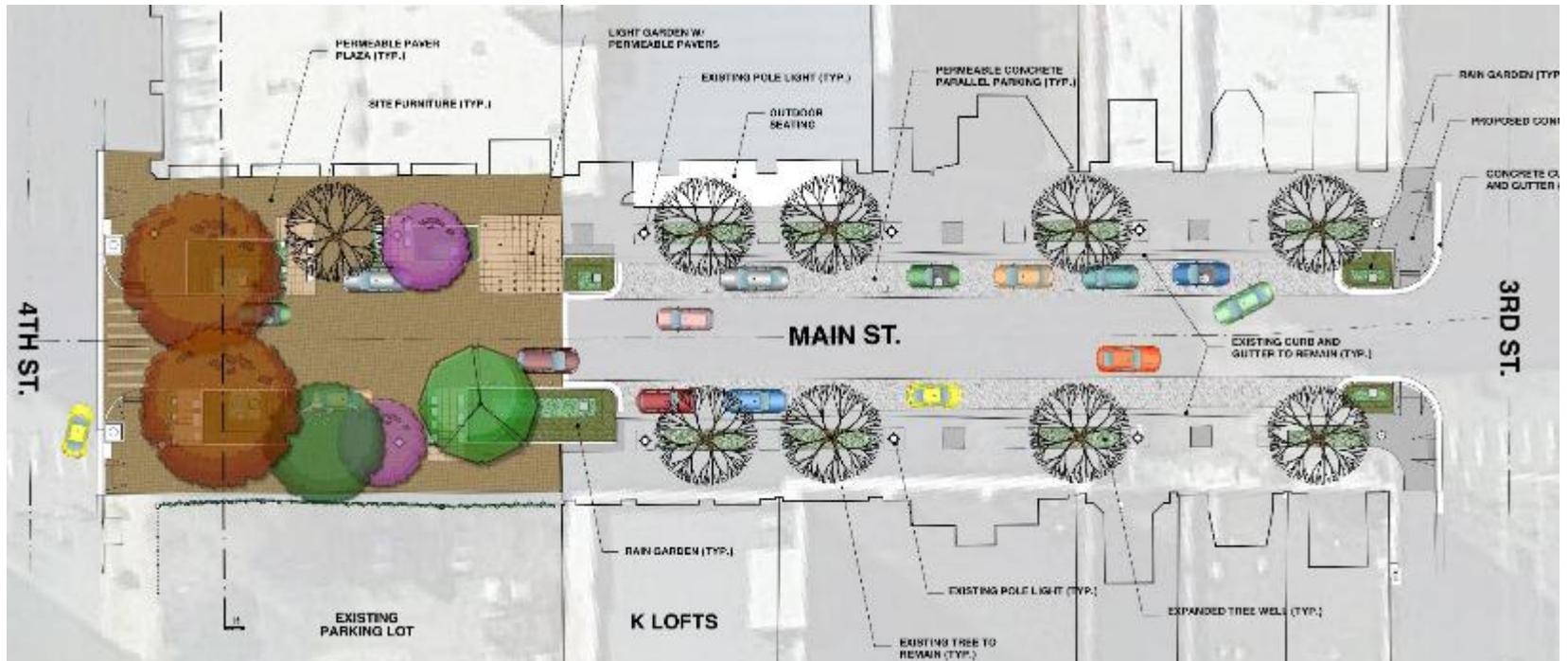
# 100 Block Main



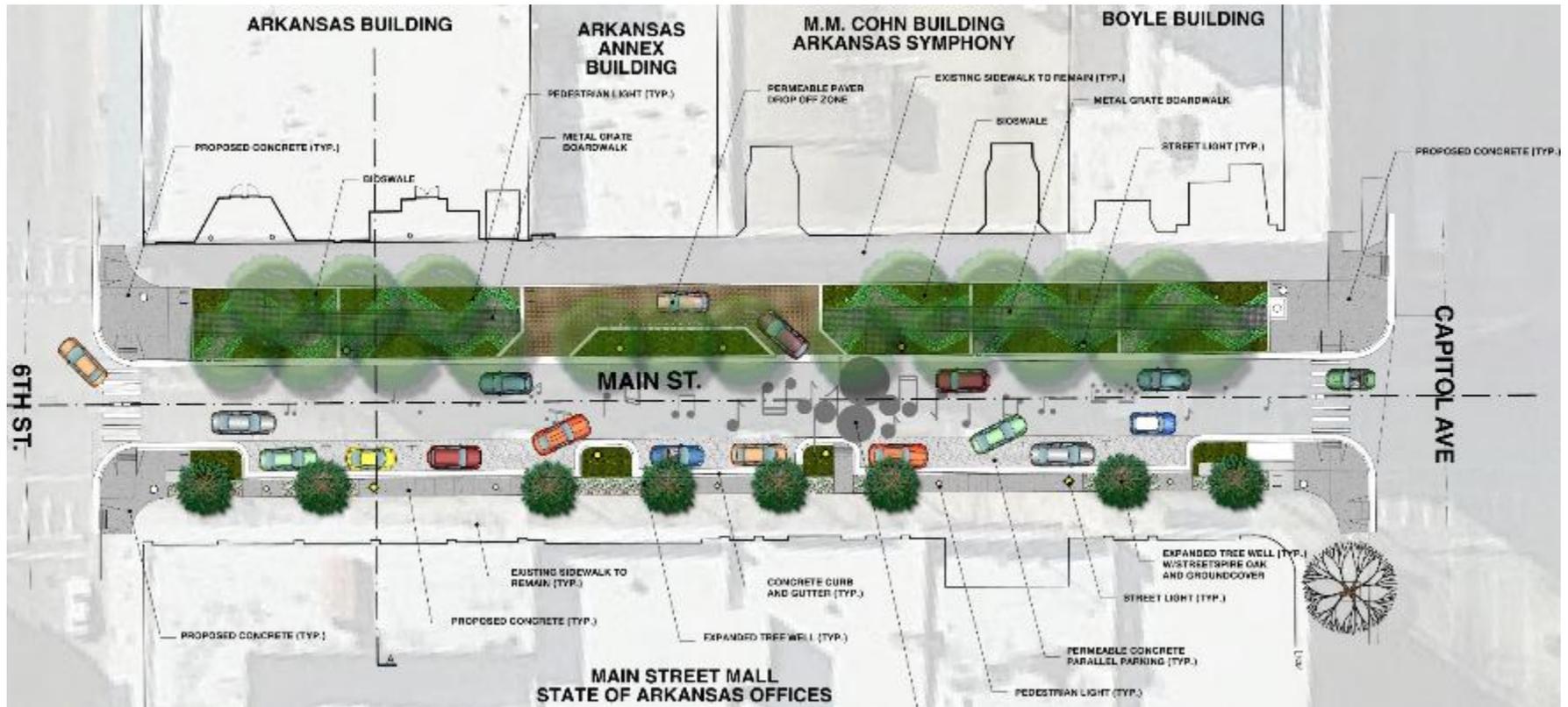
# 200 Block Main



# 300 Block Main



# 500 Block Main



# Rain Garden, Permeable Paver Plaza & Drive Lanes

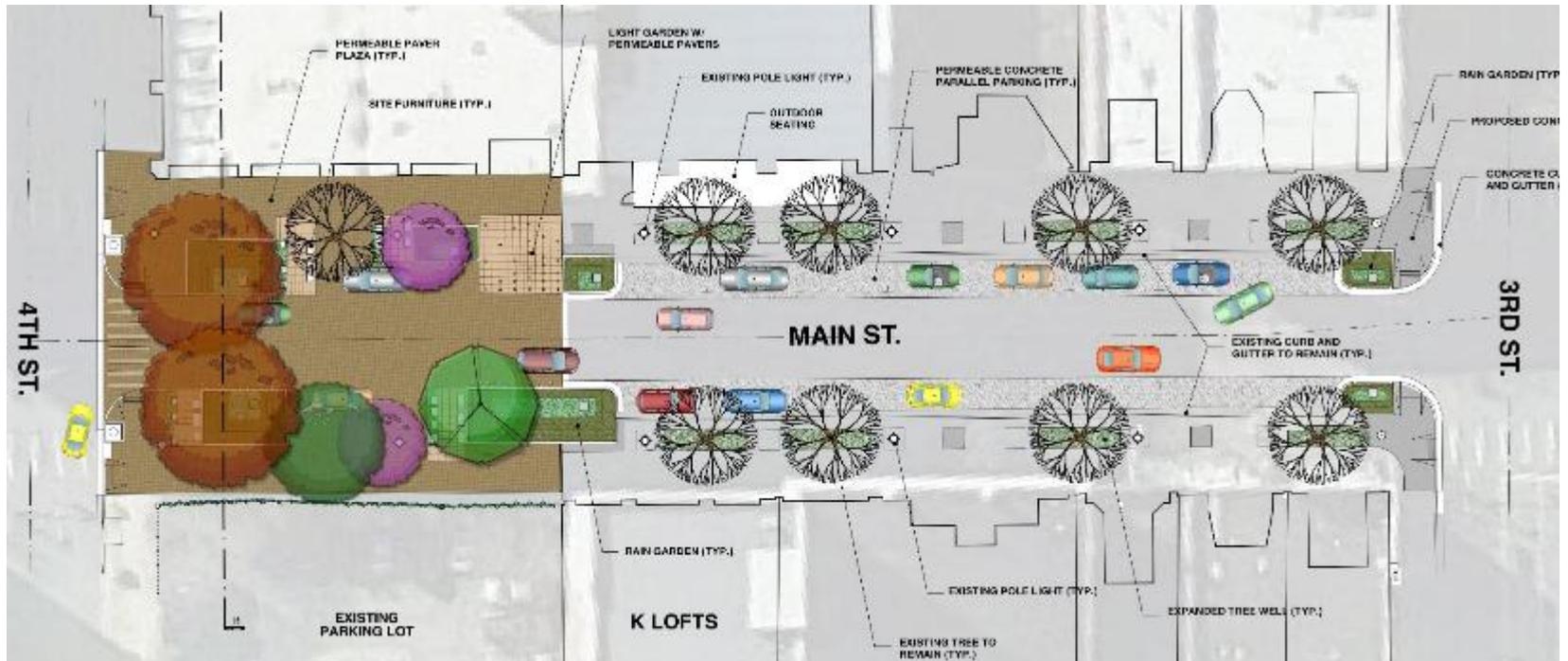


# Bioswale, Metal Grate Boardwalk & Permeable Concrete Parking

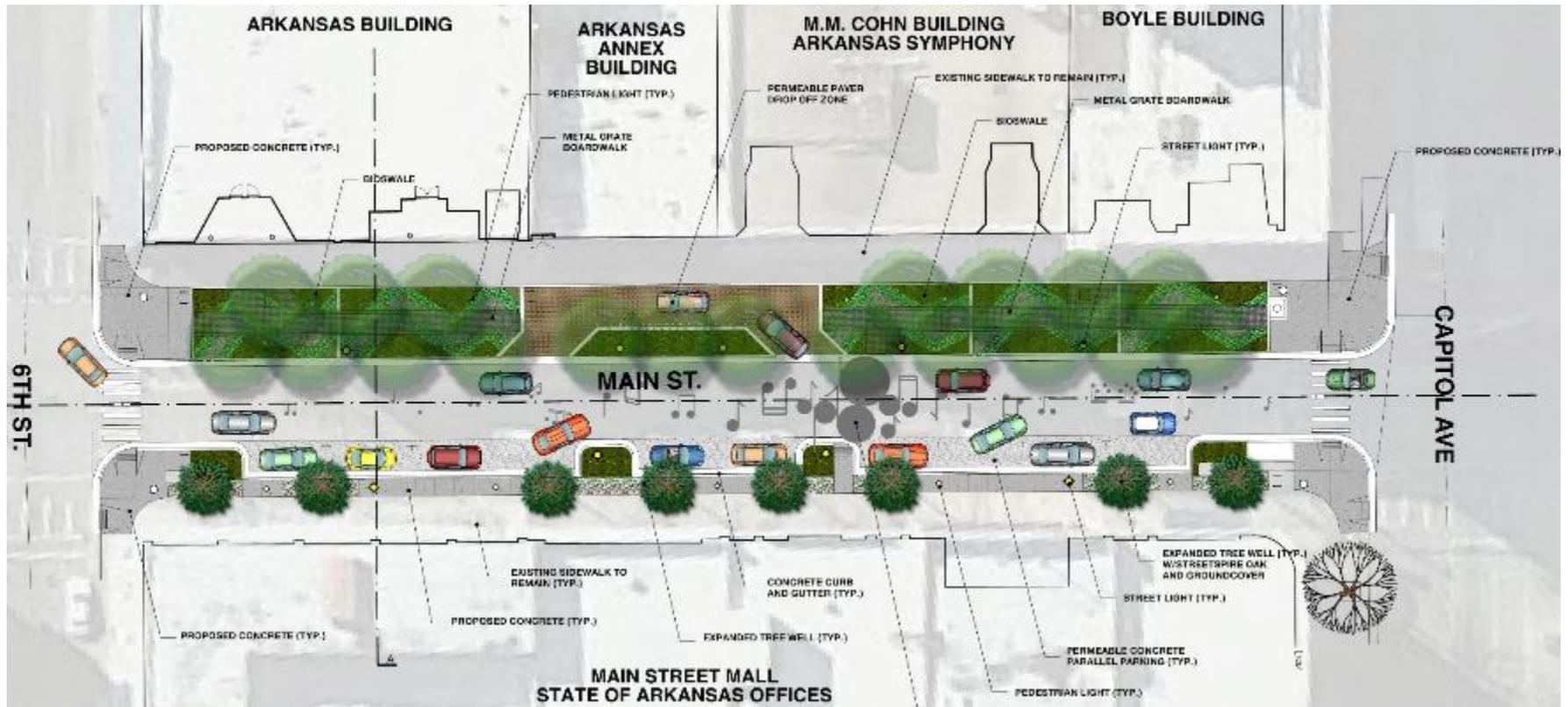




# 300 Block Main



# 500 Block Main



# Educate and Involve the Community

Public Meetings

Educational  
Presentations

Signage



# Partner eStem Public Charter School

Committee of Teachers

Start with 7<sup>th</sup> Grade  
across-the-curriculum

AP Environmental  
Science Advanced work



# Challenges



Beautification vs. Water Quality

Budget Constraints

Basements Under Street

Parking

Trees

Safety



**Result:**  
**Economic**  
**Development**  
**\$76 Million**

# MAIN STREET WELCOMES CREATIVE CLASS

...ioned how he'd like to be  
...the "creative class"

## A tipping point for Little Rock

Perhaps downtown Little Rock is finally at a tipping  
...ent afternoon when I park

## Downtown: the 'Place' to be

Placemaking, as defined by the Project for Public Spaces  
...haping of public places to maximize shared value. Place  
...ple more collectively and intentionally shape  
... on the planet.

## Arkansas Symphony Orchestra to Move Offices to Main Street

by **Kate Knable**

Posted 1/28/2013 11:47 am  
Updated 1 year ago

The Arkansas Symphony Orchestra has execu  
practice space and offices to Main Street in Li  
Christina Littlejohn, executive director of the s

<http://www.arkansasonline.com/news/2013/jun/02/south-main-aims-cozy-vibe>

## South Main aims for cozy vibe

Hands-on investors Davis, Fox gave rebirth its momentum

By Jessica Seaman

...y, said the symphony's board

## million Main Street redevelopment project icated

[Lesnick](#) [twitter](#)

published today at 8:41 a.m. Updated today at 11:18 a.m.



## Main Street revival

THAT'S BUSINESS

## Main to get another big mixed-use project

Weatherly

... 16, 2014 at 3:06 a.m.

# THANK YOU

- Clark Wilson at the EPA Sustainable Communities
- Tony Ramick- ANRC
- NEA
- Stakeholders/ Partners
- Wonderful Staff:
  - Debbie and Larra



Improving Water Quality  
Using Compact  
Development And Smart  
Growth Techniques



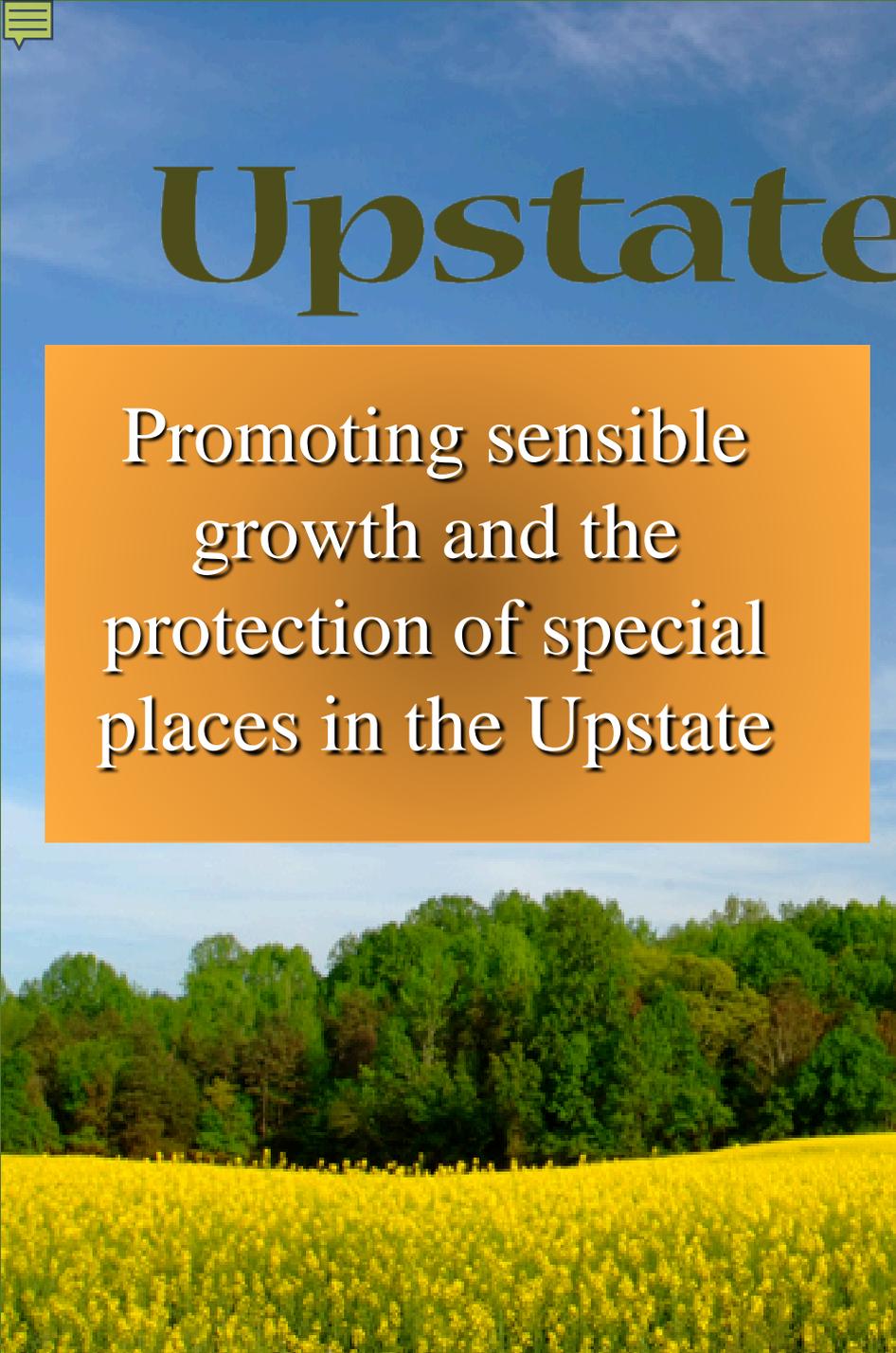
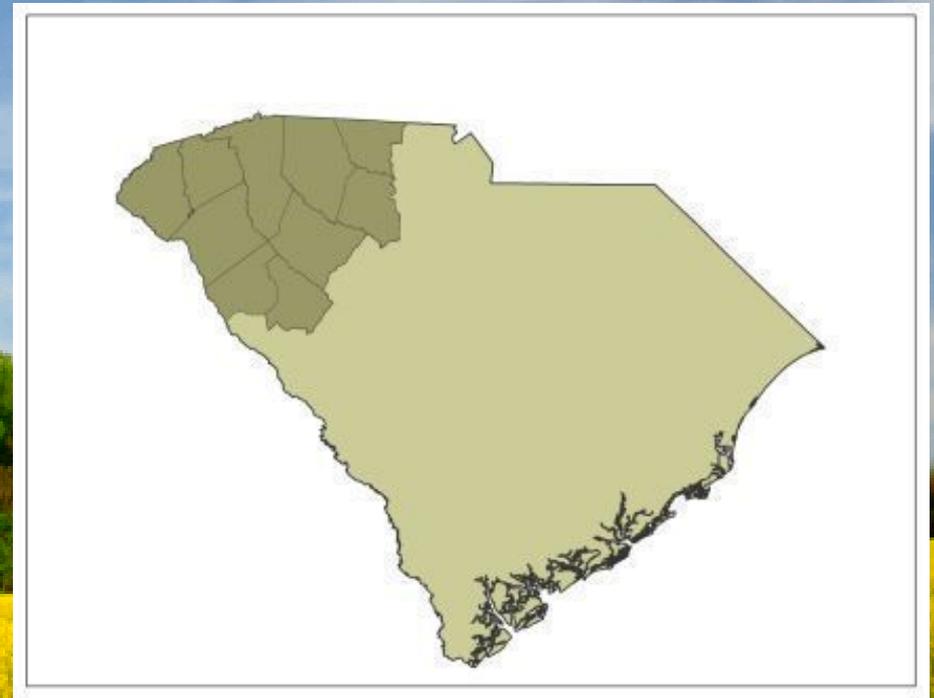
Heather Nix  
&  
Erika Hollis

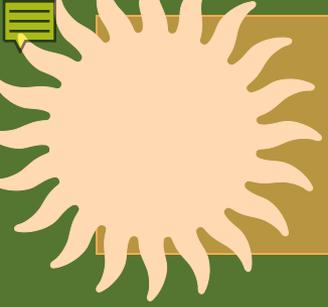
EPA Green Infrastructure &  
Smart Growth Webcast  
September 3, 2014



# Upstate Forever

Promoting sensible growth and the protection of special places in the Upstate





# Stormwater Banking Program Residential & Commercial

A voluntary, market-based initiative that  
reduces costs and improves water quality  
throughout  
Greenville County and the City of  
Greenville.

# SBP – RESIDENTIAL STAKEHOLDERS

- Acadia
- Addison Homes
- Appalachian Council of Governments
- Arbor Engineering
- Arnett Muldrow Planning Associates
- CCAD Engineering
- City of Greenville
- City of Fountain Inn
- City of Mauldin
- City of Travelers Rest
- Clemson University
- Clemson University – Strom Thurmond Institute
- Collection System Alliance
- Darrohn Engineering
- Freeland & Associates
- Furman University
- Greater Greenville Association of Realtors
- Greenlink Transit
- Greenville Forward
- Greenville County Buildings & Codes
- Greenville County Engineering & Maintenance
- Greenville County Fire Chiefs
- Greenville County Planning & Land Development Staff
- Greenville County
- O’Leary-Cole Construction
- Overstreet Design Studio
- Redevelopment Authority
- Greenville County School District
- Home Builders Association (HBA) of Greenville
- Metropolitan Sewer Subdistrict
- Parker Sewer Subdistrict
- Renewable Water Resources (ReWa)
- SC DHEC
- Seamon Whiteside & Associates
- Sprague & Sprague Consulting
- The Randolph Group
- Trees Greenville
- Upstate Forever
- Woolpert



# STAKEHOLDER REQUESTS

- More predictable process
- Higher density projects
- Infill projects
- Flexible setback and lot size requirements

# PROGRAM CORNERSTONES

1. Voluntary Incentive Program
2. Reduced Costs for Taxpayers
3. Improved Water Quality

**CAUTION**  
**SWIMMING ADVISORY**  
BACTERIA LEVELS HAVE EXCEEDED STATE STANDARDS  
SWIMMING HERE MAY MAKE YOU SICK  
For more information visit South Carolina Department of Health and Environmental Control at <http://www.schech.gov/swimadvisory> or call 1-800-360-5655

**PRECAUCIÓN**  
**ADVERTENCIA SOBRE NADAR**  
LOS NIVELES DE BACTERIA HAN EXCEDIDO LOS CRITERIOS DEL ESTADO  
NADAR AQUÍ PUEDE ENFERMARLE  
Para más información visite la página de red del Departamento de Salud y Control Ambiental de Carolina del Sur <http://www.schech.gov/swimadvisory> o llame al 1-800-360-5655



# PROGRAM STEPS

1. Developer determines eligibility and chooses to participate
2. Developer participates in program for streamlined approval of a density bonus
3. County improves water quality with funds generated

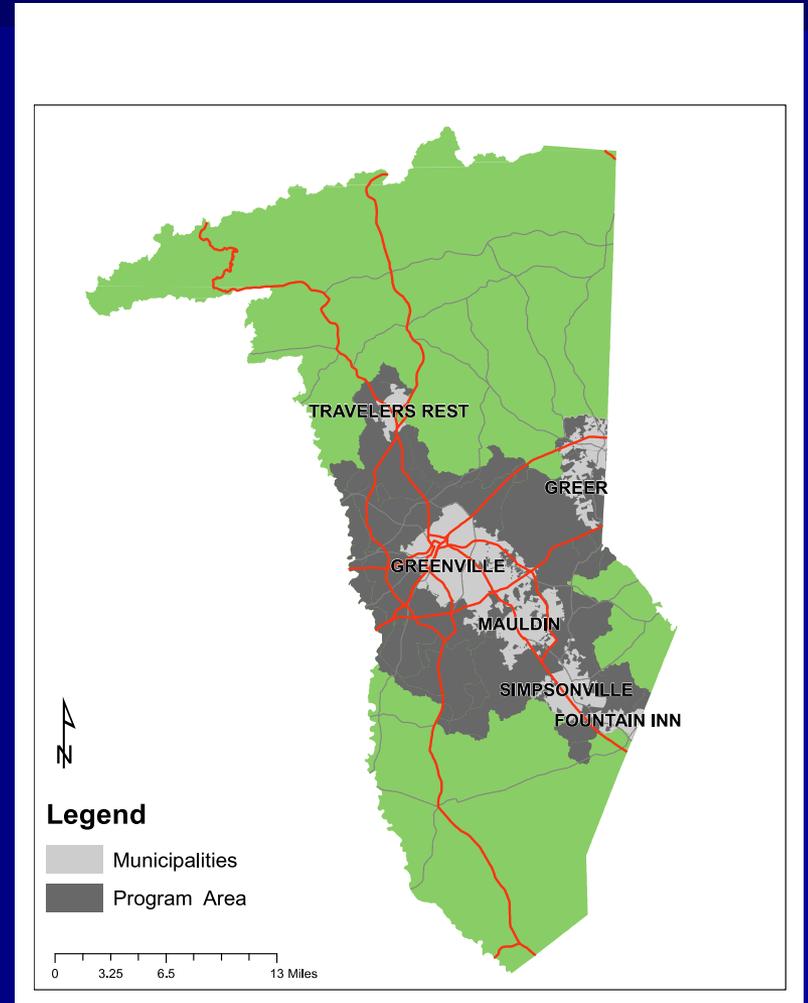
# BENEFITS TO DEVELOPERS

- More predictable process & program
- Allows additional units
- Minimum lot size waived
- Reduced setback requirements
- Approval for single family attached



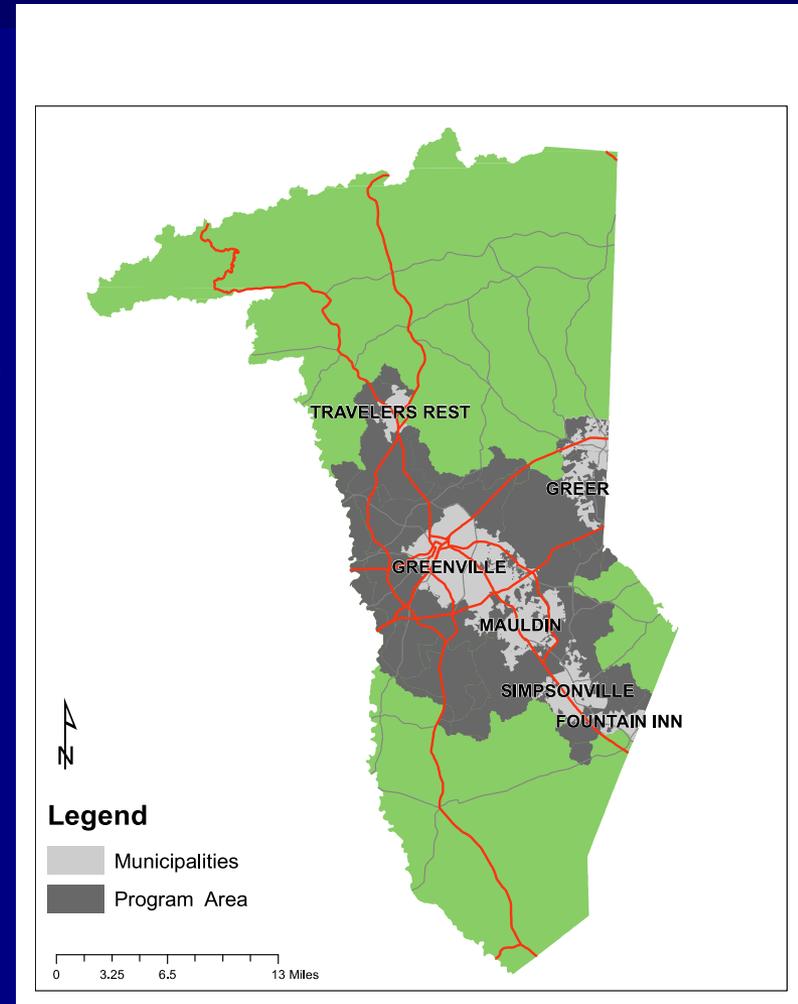
# ELIGIBILITY FOR VOLUNTARY PARTICIPATION

1. Develop within the program area



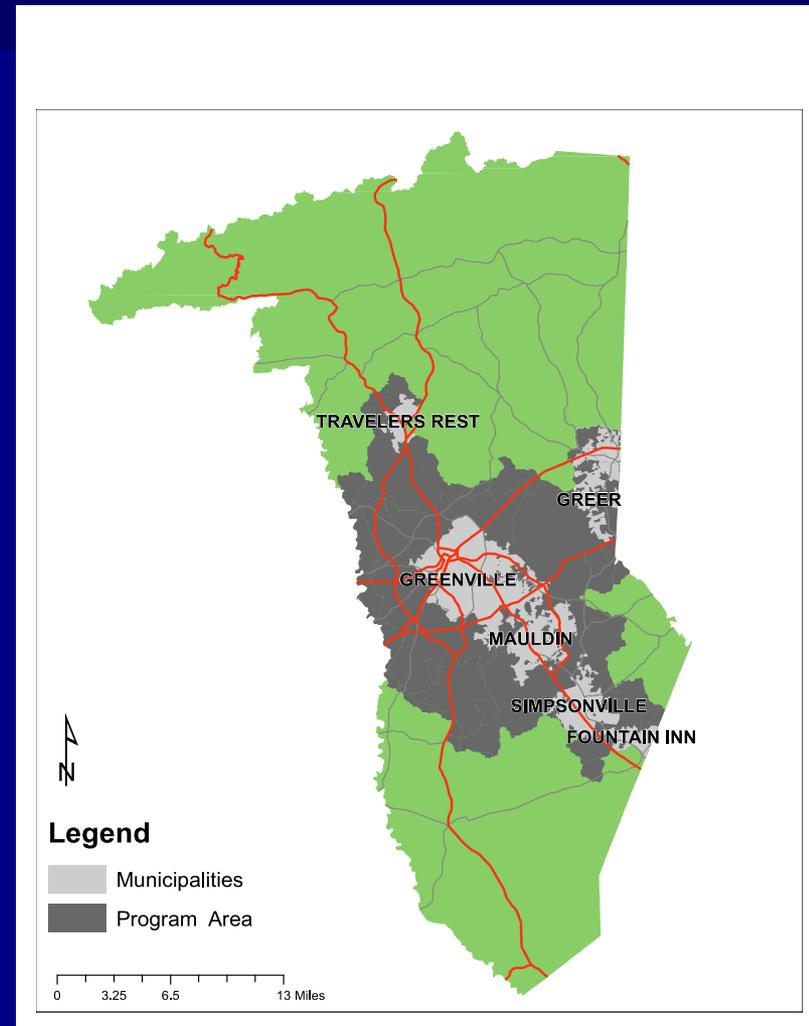
# ELIGIBILITY FOR VOLUNTARY PARTICIPATION

1. Develop within the program area
2. Use Decision Making Tool and attain minimum score



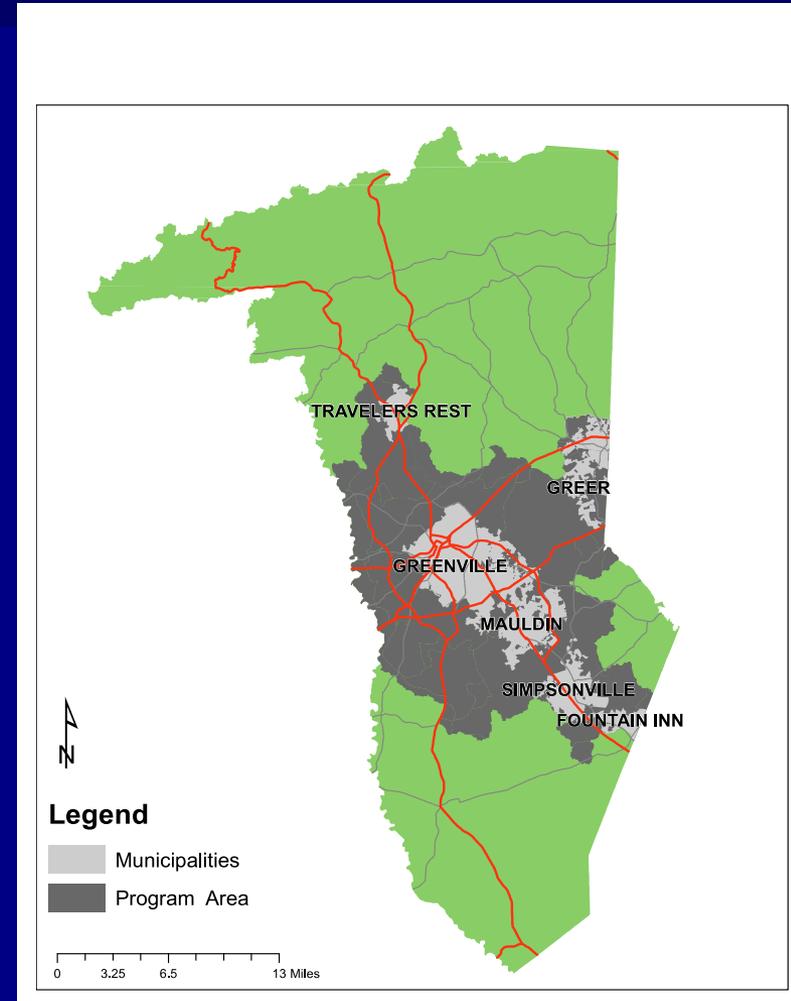
# ELIGIBILITY FOR VOLUNTARY PARTICIPATION

1. Develop within the program area
2. Use Decision Making Tool and attain minimum score
3. Receive one approval from County Council



# ELIGIBILITY FOR VOLUNTARY PARTICIPATION

1. Develop within the program area
2. Use Decision Making Tool and attain minimum score
3. Receive one approval from County Council
4. Pay a participation fee
  - Clemson University Economist developed formula to calculate fee
  - Formula takes several factors into account including: additional lots, average price of lots, DMT score



# DECISION MAKING TOOL FOR EARNING POINTS

## General Information

Subdivision Name

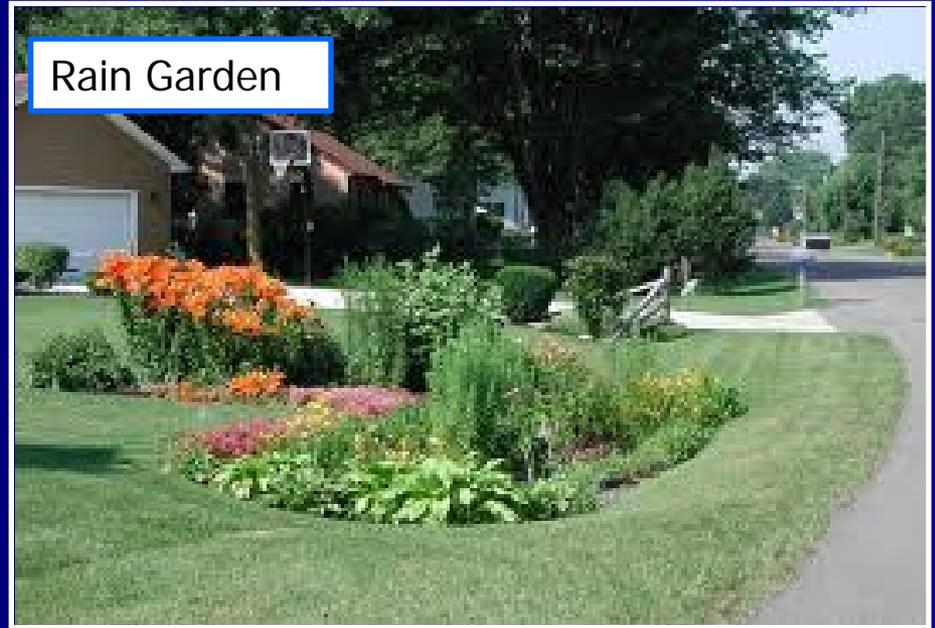


# EARNING POINTS AT THE SITE SCALE

Porous Pavement



Rain Garden



Rain Barrel



# EARNING POINTS AT THE NEIGHBORHOOD SCALE



# EARNING POINTS AT THE REGIONAL SCALE



Source: <http://www.facebook.com/thecafepage.org>.

# STORMWATER BANKING PROGRAM



# IMPROVING WATER QUALITY THROUGHOUT GREENVILLE COUNTY



*Source: GCRA*

# POTENTIAL FUTURE SEDIMENT AND NUTRIENT REDUCTIONS

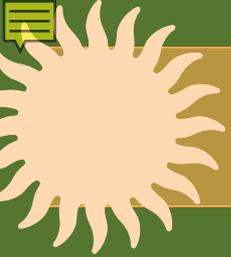
- Reduce peak flows from storm events
- Reduce sediment loading by half
- Reduce pollutant loading by half
- Reduce treatment costs for developers





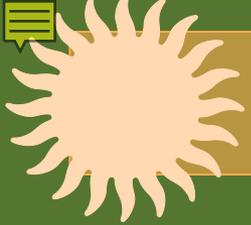
# SUMMARY OF RESIDENTIAL STORMWATER BANKING PROGRAM

- Voluntary, market-based program
- Added flexibility for developers
- Fiscally conservative
  - Most cost effective use of county infrastructure
  - Cost savings for the County, developers, and tax payers
  - Funds for water quality improvement projects throughout the County
- Improved stormwater treatment = better water quality
- Protect natural resources for future generations



# Stormwater Banking Program - Commercial

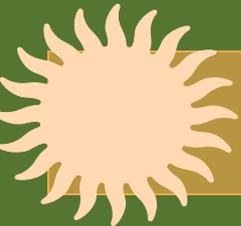




# Parking Study

- 120 Parking Lots Surveyed
- Land Uses:
  - Retail & Sales (Big box, shopping centers, discount stores)
  - Office (General office, medical office)
  - Restaurants (sit down, drive through)
  - Financial Institutions (banks with & without drive through)
- Types of Surveys:
  - Aerial Surveys: Peak (Black Friday), Non-peak
  - On-the-ground: 3x during peak usage period





# Aerial Surveys



- Banks (8)
- Restaurants (19)
  - Drive-thru
  - Without drive-thru



**WACHOVIA**  
A Wells Fargo Company



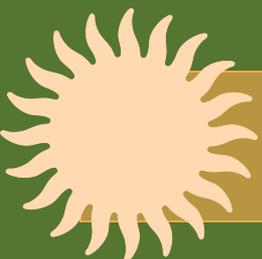
- Grocery Stores (4)
- Medical offices (12)
- Offices (16)



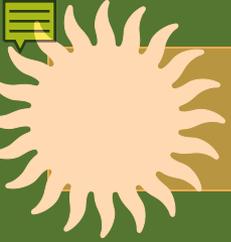
- Personal Service (7)
  - Salons
  - Veterinary Clinics
  - Health Clubs



- Pharmacies (4)

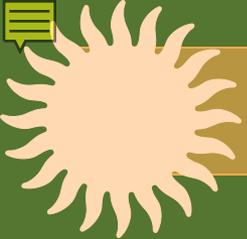


## On the Ground Surveys



# Parking Study Data

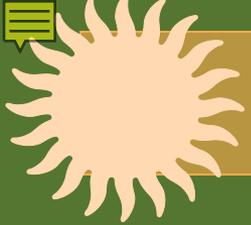
Land Use	Peak Parking Occupancy	Excess Parking
Discount/Dept. Store	45%	55%
Financial Institutions	42%	58%
Grocery Stores	35%	65%
Health Clubs	74%	26%
Pharmacies	45%	55%
Shopping Centers	63%	37%
Offices	58%	42%
Medical Offices	52%	48%
Drive-through Restaurants	58%	42%
Other Restaurants	39%	61%



## Parking Recommendations – Commercial Land Uses

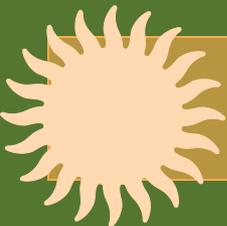
Land Use	No. Spaces to Accommodate Peak Demand
Discount Stores	2
Financial Institutions	3
Grocery Stores	1.7
Shopping Centers	1.9
Offices	2.8
Medial facilities (non-hospital)	3.3
Drive Through Restaurants	8.3
Other Restaurants	6.3

Maximum parking space needs for different land uses based on parking capacity study. Spaces based on 1,000 sq. ft.



# Conducting a Parking Study

- Locations – Pick sites that are representative of the land uses
  - Input from staff of local government
- Data Collection –
  - Aerial Surveys
    - Capture a lot of data in short amount of time
    - Need a plane – look for volunteer pilots (SouthWings)
  - On-the-ground Surveys
    - Better for smaller lots
    - More time intensive
    - Utilize volunteers when possible
    - Permission from local government
- Supplies –
  - Digital camera
  - Safety vests
  - Tally counters



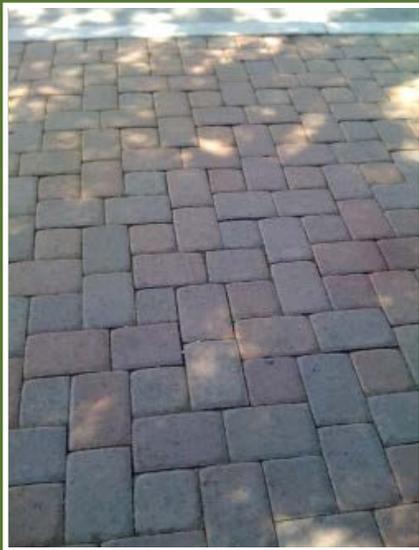
## Stormwater Banking Program – Commercial



Pervious Pavements

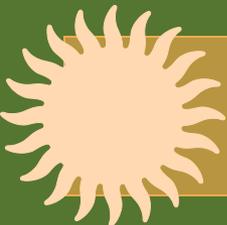


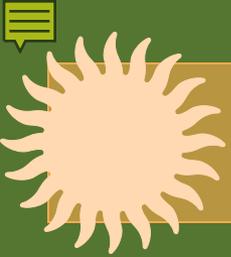
Bioretention Cells



Vegetated Filter Strips

Example Low Impact Development Options

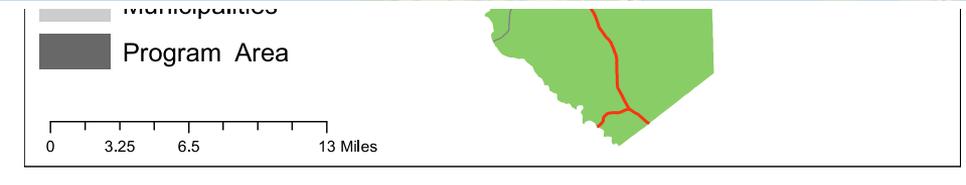




## Summary of Commercial SBP

1. Install the minimum required amount of parking spaces,  
or
  2. Use Low Impact Development (LID) to manage  
stormwater generated for additional parking spots
1. Pay a fee-in-lieu of LID for any parking spaces above the  
minimum required.

*Fees generated by the program will be used by the City for  
Water Quality Improvement Projects.*



# Expanding the Stormwater Banking Program

Thank You!

Heather Nix  
hnix@upstateforever.org

Erika Hollis  
ehollis@upstateforever.org  
864.250.0500



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# Speaker Contacts

**Melissa Kramer**, U.S. EPA Office of Sustainable Communities

[Kramer.Melissa@epa.gov](mailto:Kramer.Melissa@epa.gov) | (202) 564-8497 | [www.epa.gov/smartgrowth/greencapitals.htm](http://www.epa.gov/smartgrowth/greencapitals.htm)

**Caran Curry**, City of Little Rock

[ccurry@littlerock.org](mailto:c Curry@littlerock.org) | (501) 371-4583 | <http://www.littlerock.org/>

**Heather Nix**, Upstate Forever

[hnix@upstateforever.org](mailto:h nix@upstateforever.org) | (864) 250-0500 x25

**Erika Hollis**, Upstate Forever

[ehollis@upstateforever.org](mailto:ehollis@upstateforever.org) | (864) 250-0500 x17

<http://www.upstateforever.org/stormwater-banking-program/>

For questions about EPA's Green Infrastructure Webcast Series:

**Eva Birk**, ORISE Fellow, U.S. EPA Office of Wastewater Management

[Birk.eva@epa.gov](mailto:Birk.eva@epa.gov) | (202) 564-3164

**Emily Ashton**, ORISE Fellow, U.S. EPA Office of Wastewater Management

[Ashton.emily@epa.gov](mailto:Ashton.emily@epa.gov) | (202) 564-3324