

Rain Garden Overview





What is a Rain Garden?

- A shallow depression in a **landscape** that captures **water** (1 to 1.5-inch rainfall) and holds it a **short time**
- Runoff water is captured and infiltrated into the **soil**
- An attractive addition to a landscape

Benefits of Rain Gardens

- Reduces water pollution downstream
- Reduces flooding downstream
- Low maintenance, low water use
- Can increase water infiltration 30-40%
- Creates habitat in the landscape
- Beautiful landscape feature!



Rain Garden or Bioretention....?

Basically – It's a matter of scale.....



Rain Gardens

- Similar plants
- No PE / RLA approval required
- Usually small, 'homeowner sized' (average 60-100 sqft)
- Utilizes in-place / native soil
- Have customers that like plants??? This is for you!



Bioretention

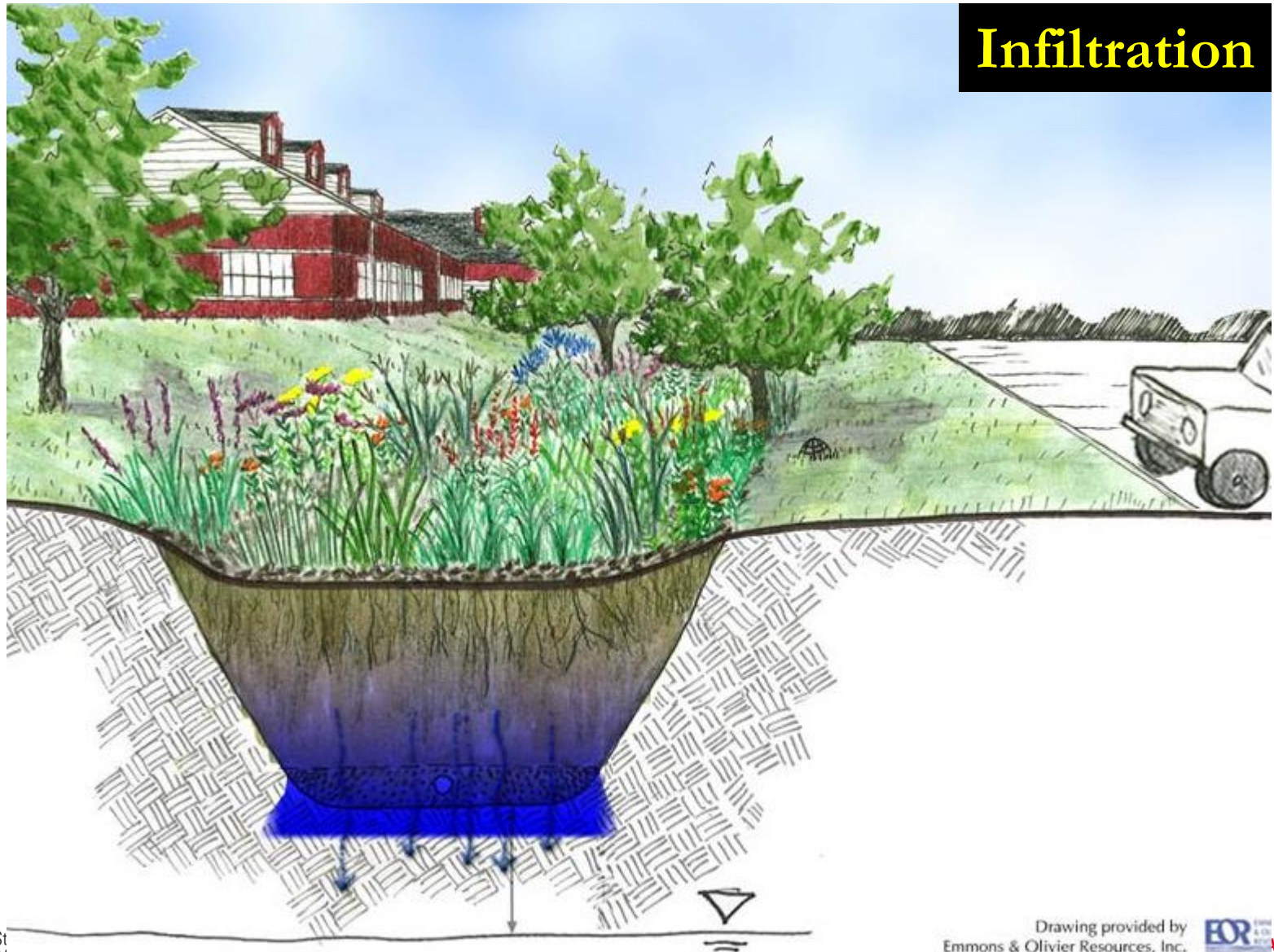
- Similar plants
- Installed to meet regulatory requirements
- RLA / PE approval required
- Can be small - very large
- Usually use specialized engineered soils / soil media and under drains to insure that it drains

Pittsboro Rain Garden Certification
October 2014

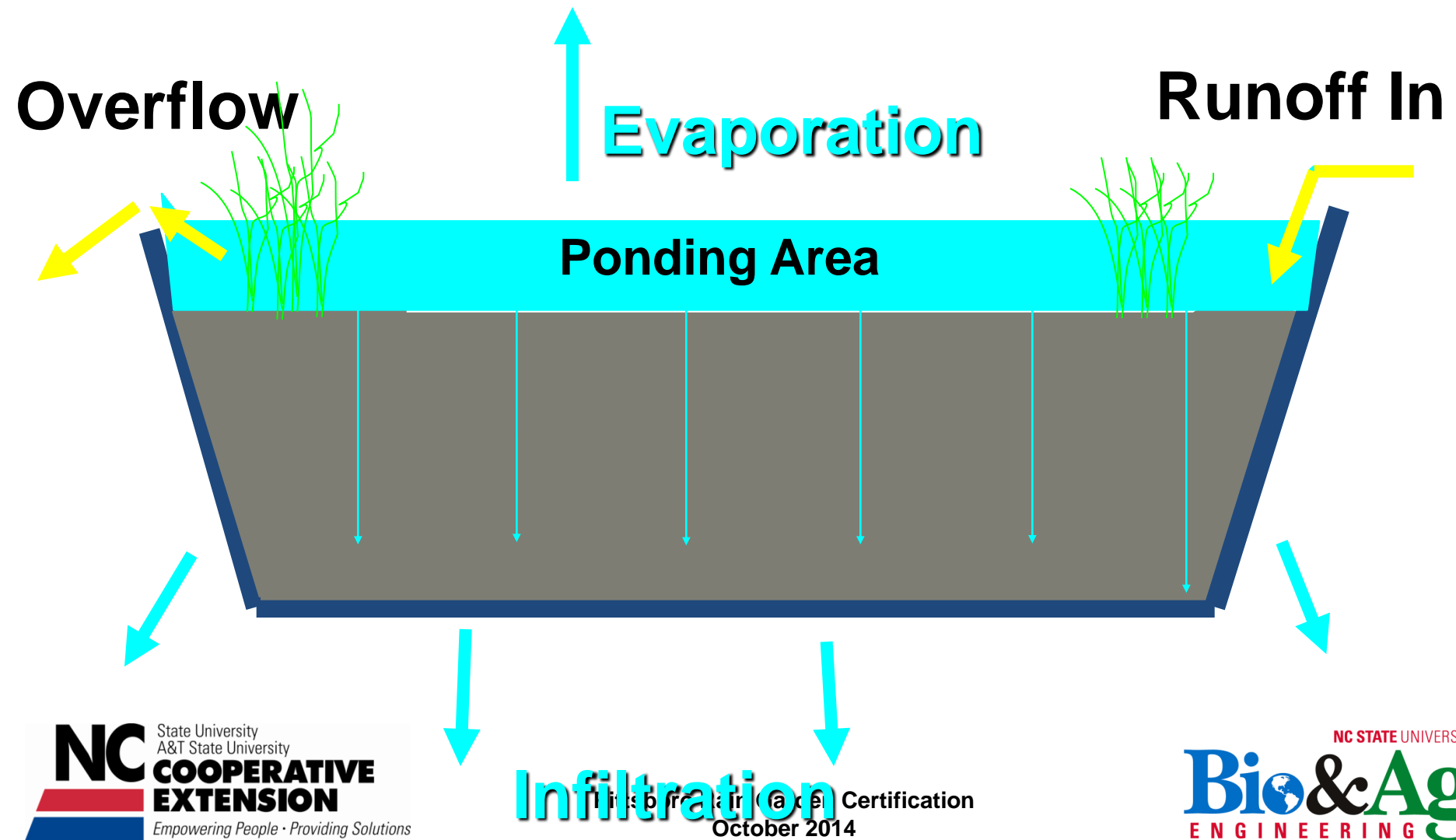
Rain Gardens Improve Water Quality

- Handles stormwater at its source.
- Keeps water on the surface aiding infiltration
- Decreases the velocity of water flowing from impervious surfaces.
- Improves water quality before it enters the stream or ditch.
- Reduces nutrients, heavy metals, sediment, fecal coliform
- Cost effective (average \$2-\$5 per sq ft. – w/o underdrain)

Infiltration



Basic Rain Garden Components



Rain Gardens are like. . .



Rain Garden will be...

Very wet sometimes...



**2-3 days
(max)**

EXTENSION

Empowering People • Providing Solutions

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Goals of Low Impact Development

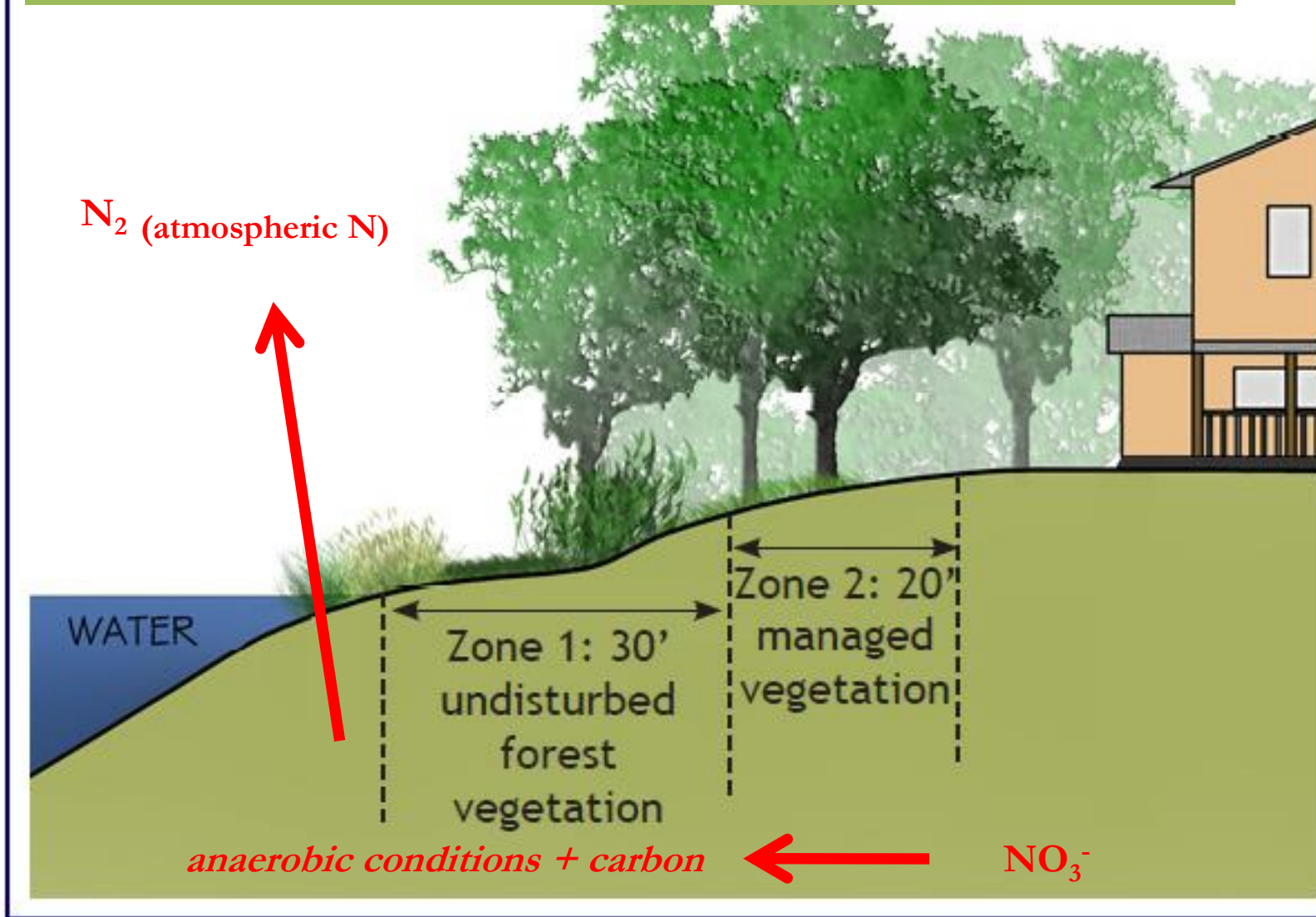
- Reduce impervious surfaces
- Retain runoff on-site
- Promoting infiltration and evapotranspiration
- **Replicating pre-development hydrologic conditions as closely as possible**



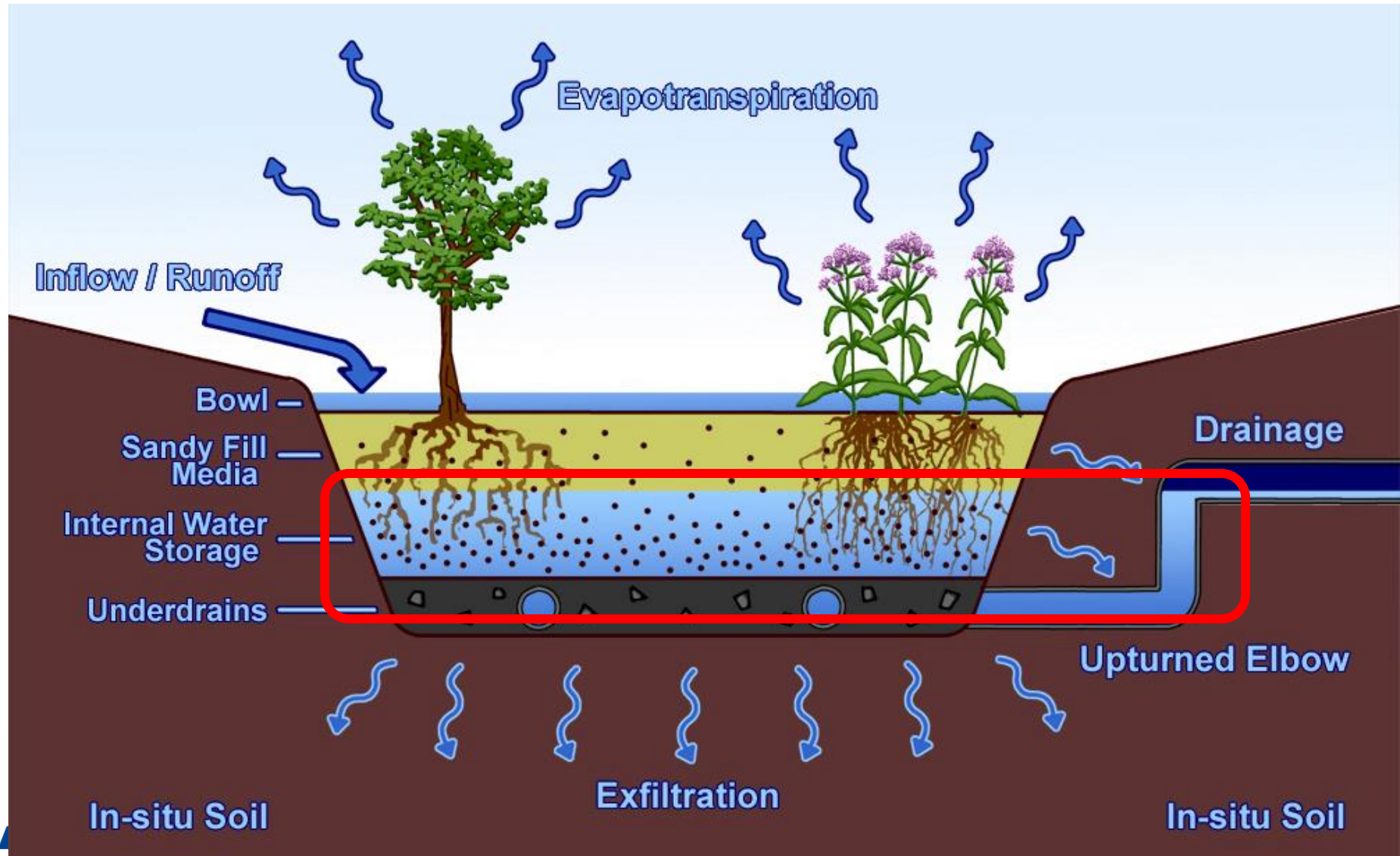
- Davis, 2005



Denitrification in Riparian Buffers



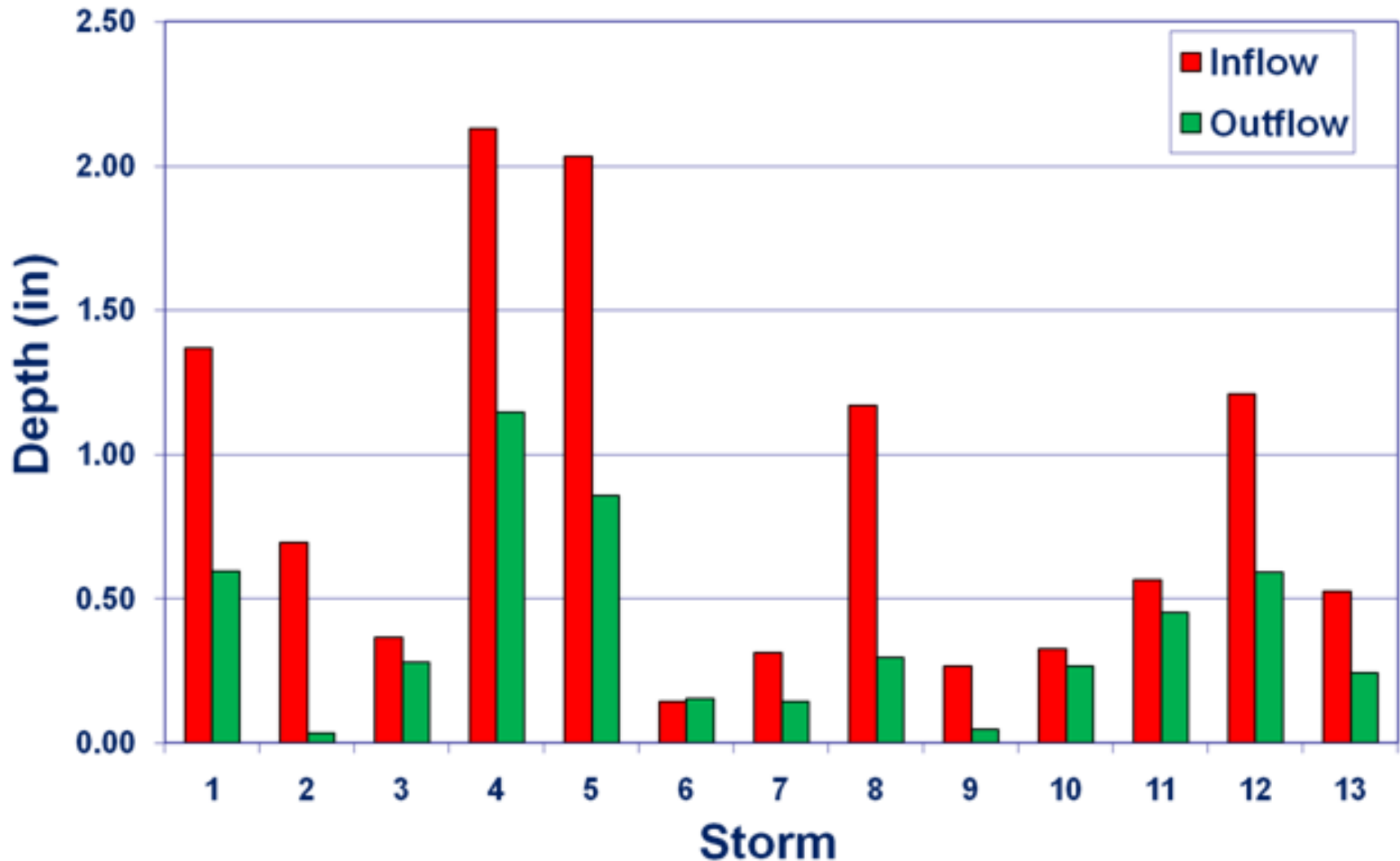
Raingardens Mimic Buffer Conditions



State BMP Manual Credit for Bioretention

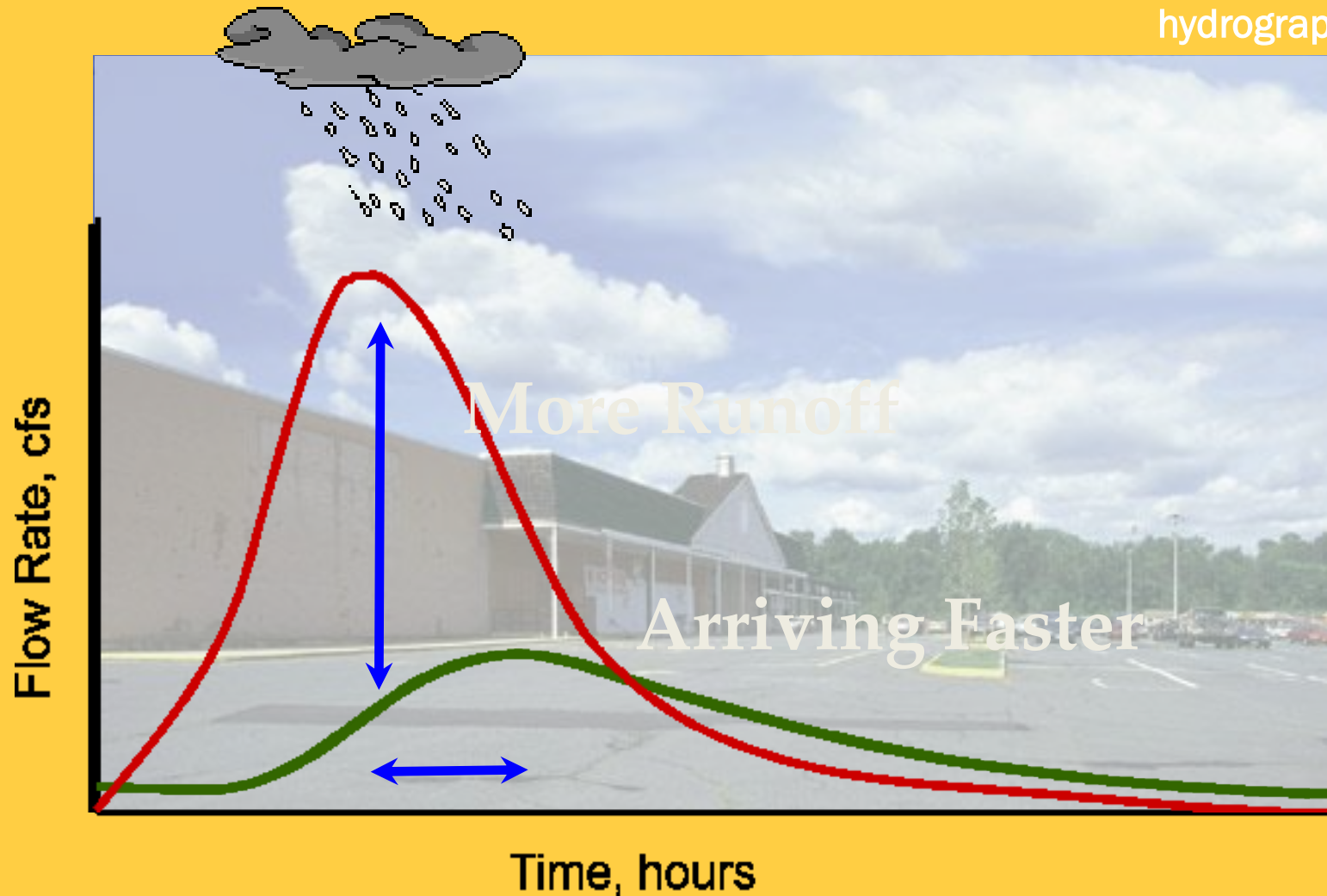
<u>Regulatory Credits</u>	
<i>Pollutant Removal – No IWS</i>	
85%	Total Suspended Solids
35%	Total Nitrogen
45%	Total Phosphorus
<i>Pollutant Removal – with IWS</i>	
<i>Coastal Plain & Sand Hills</i>	
85%	Total Suspended Solids
60%	Total Nitrogen
60%	Total Phosphorus
<i>Pollutant Removal – with IWS</i>	
<i>Piedmont & Mountains Counties</i>	
85%	Total Suspended Solids
40%	Total Nitrogen
45%	Total Phosphorus

Flow Volume (Charlotte, NC)

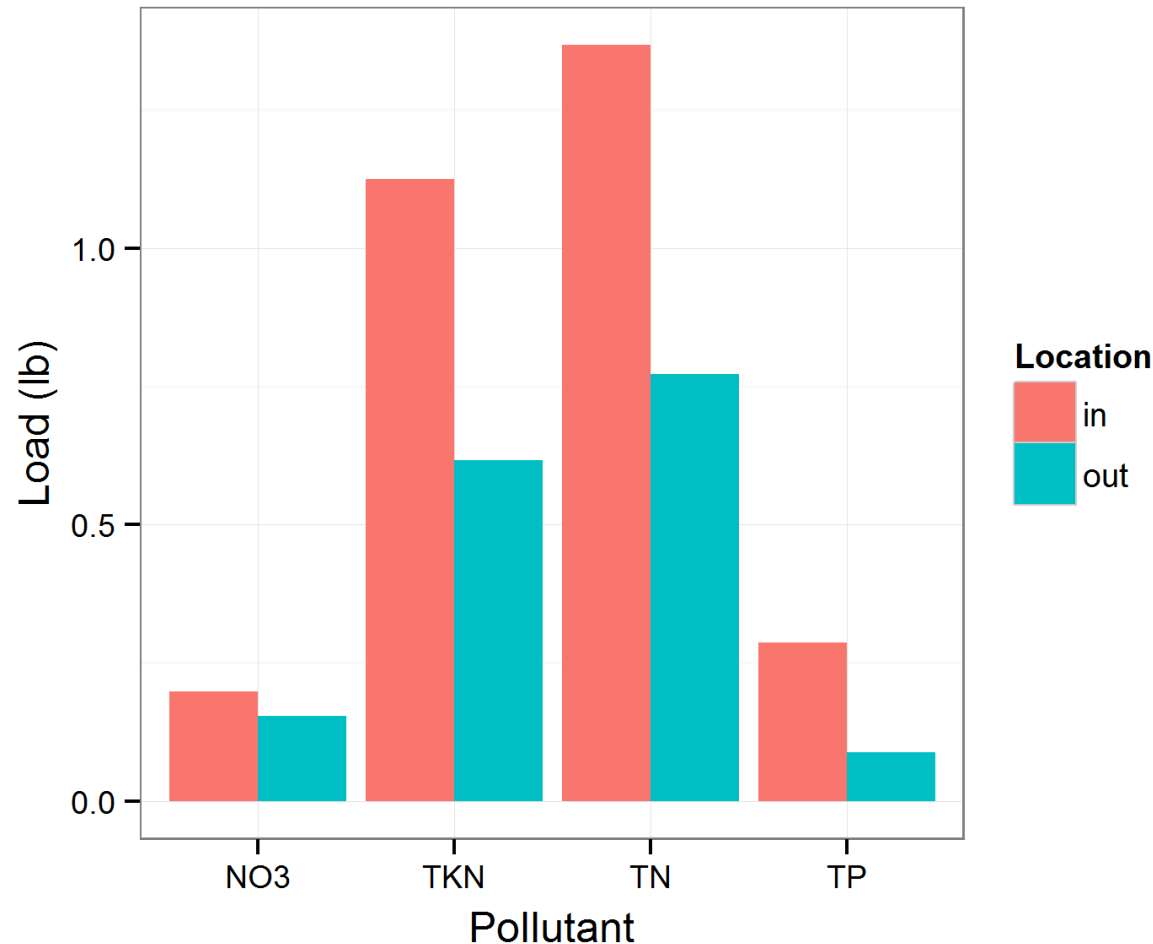


flow...viewed another way

hydrograph



Nutrients – Chapel Hill, NC



Temperature Effects?



Brevard, NC



Asheville, NC

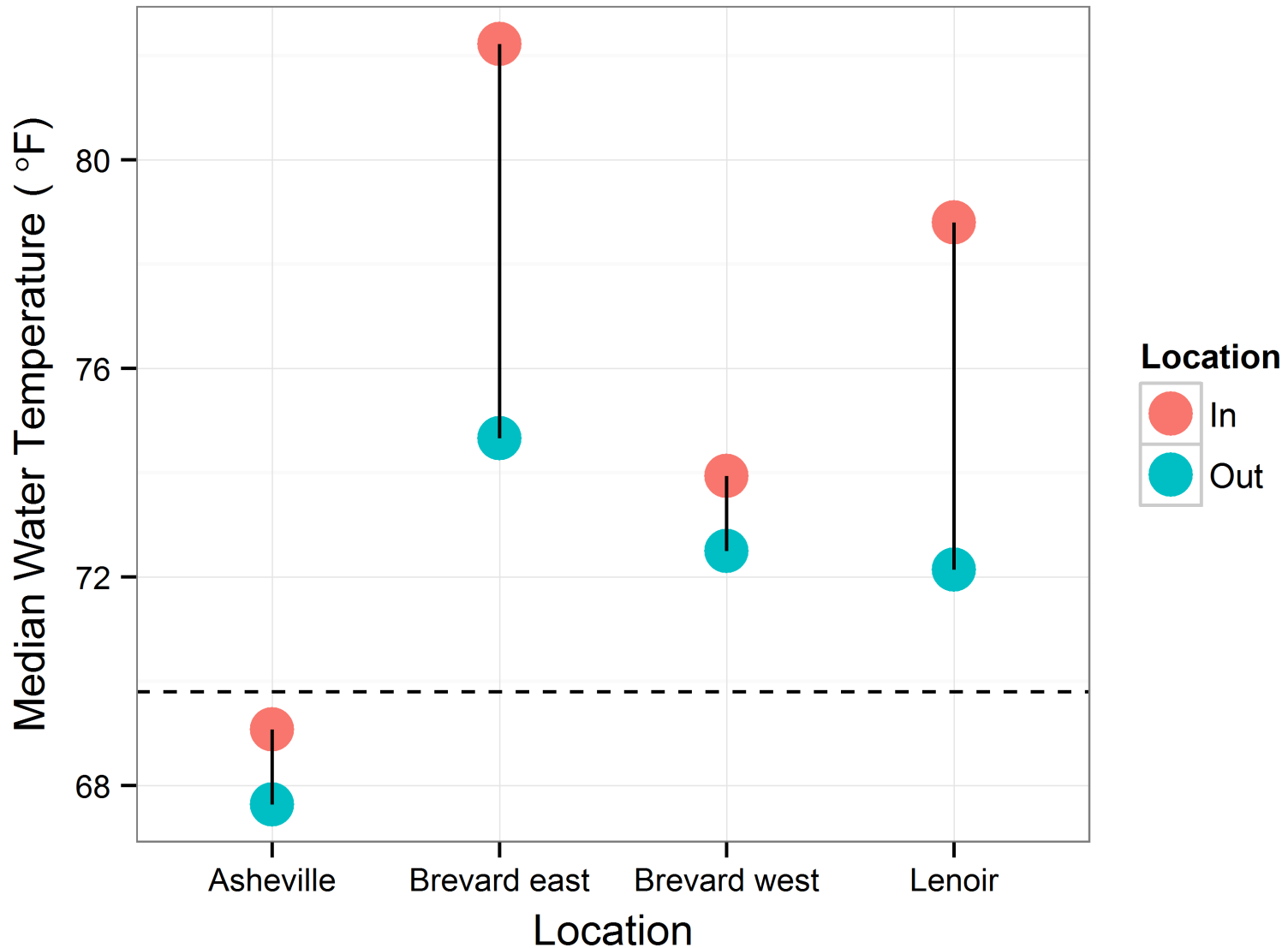


Asheville, NC



Lenoir, NC

Temperature Effects?



Rain Garden Installation Examples



Rain Garden Installation Examples



Rain Garden Installation Examples



The “Dash” / OK, Winston-Salem



Apex Town Hall



Brunswick County/ Holden Beach



Bill Hunt's Old House



Siler City Town Center



Rain Garden Installation Examples (?)

