The Reilly Elementary School Stormwater Retrofit: Water as a Resource and Education Tool

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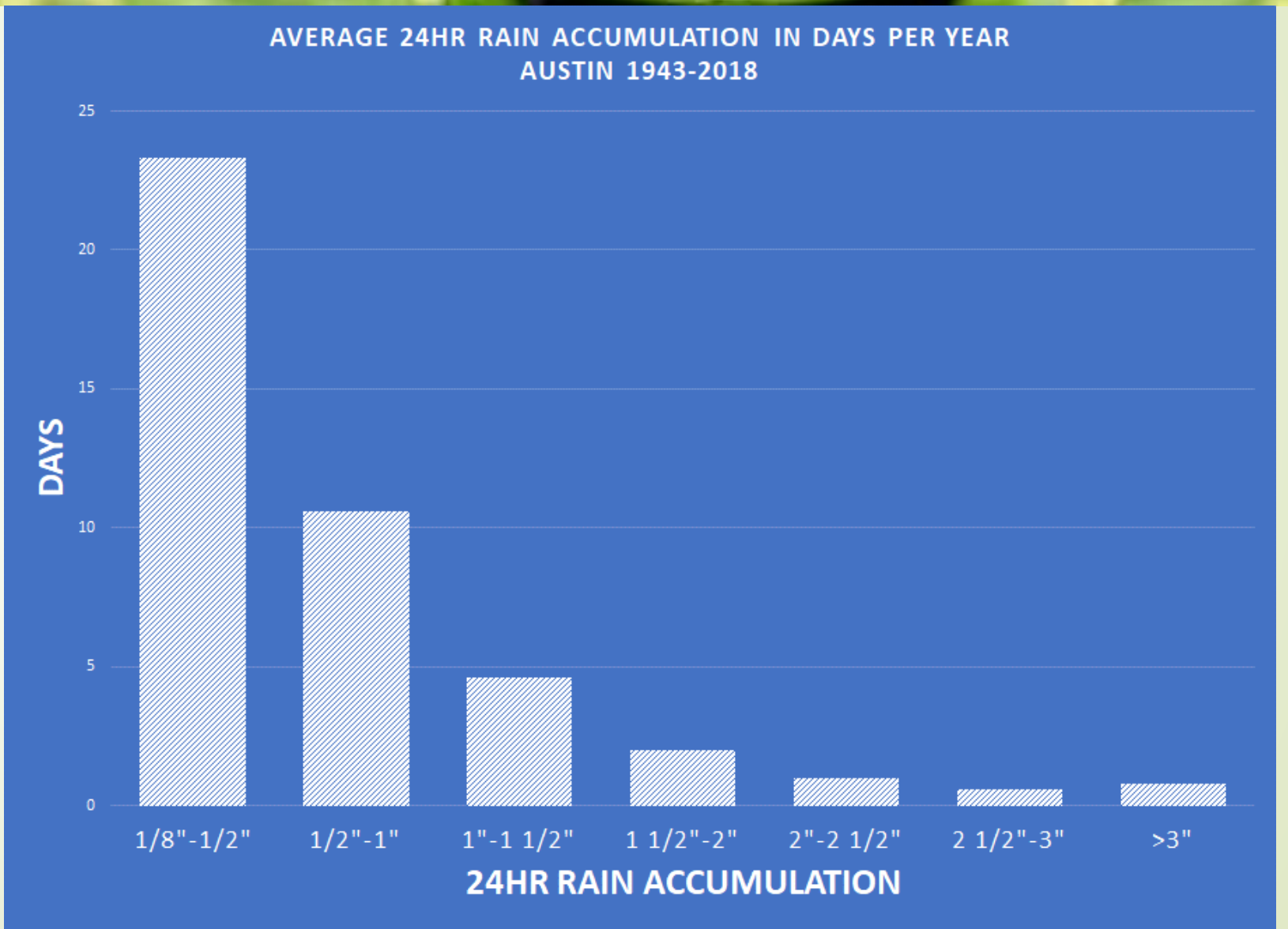
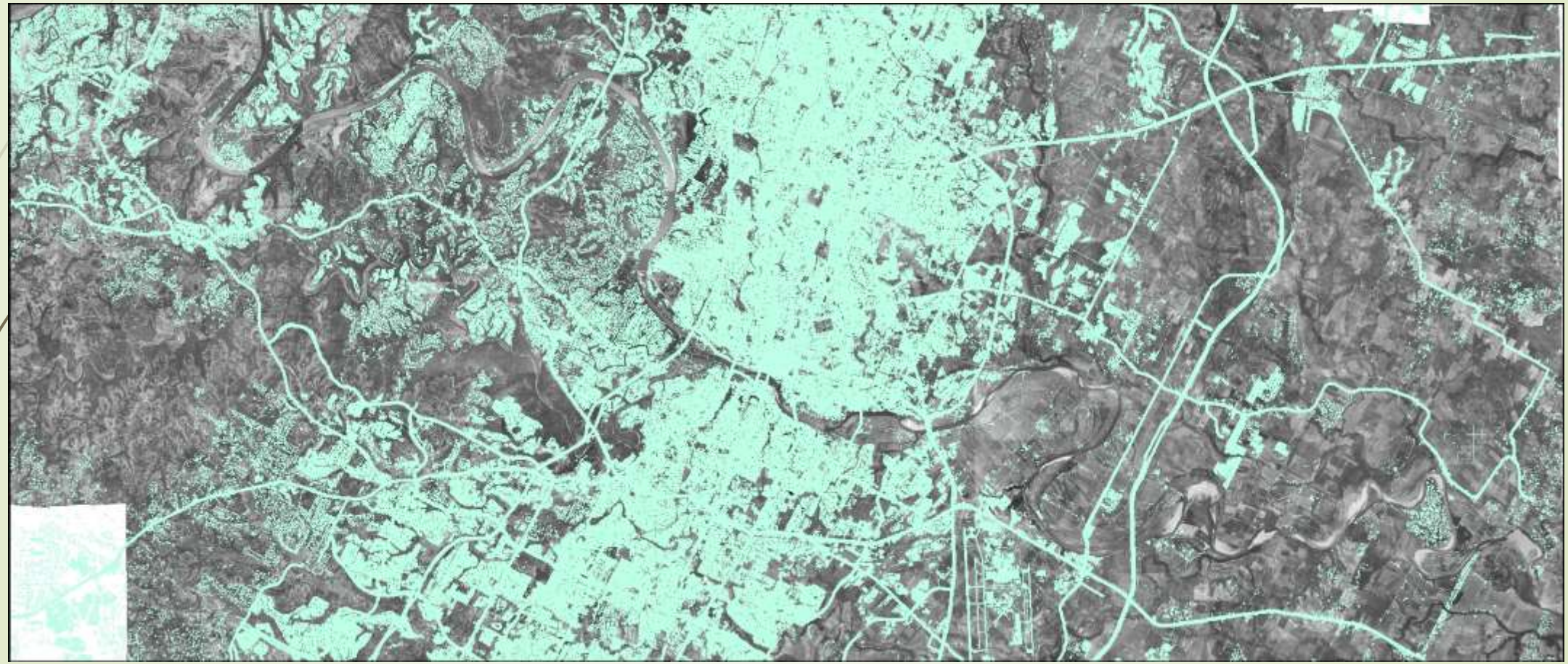
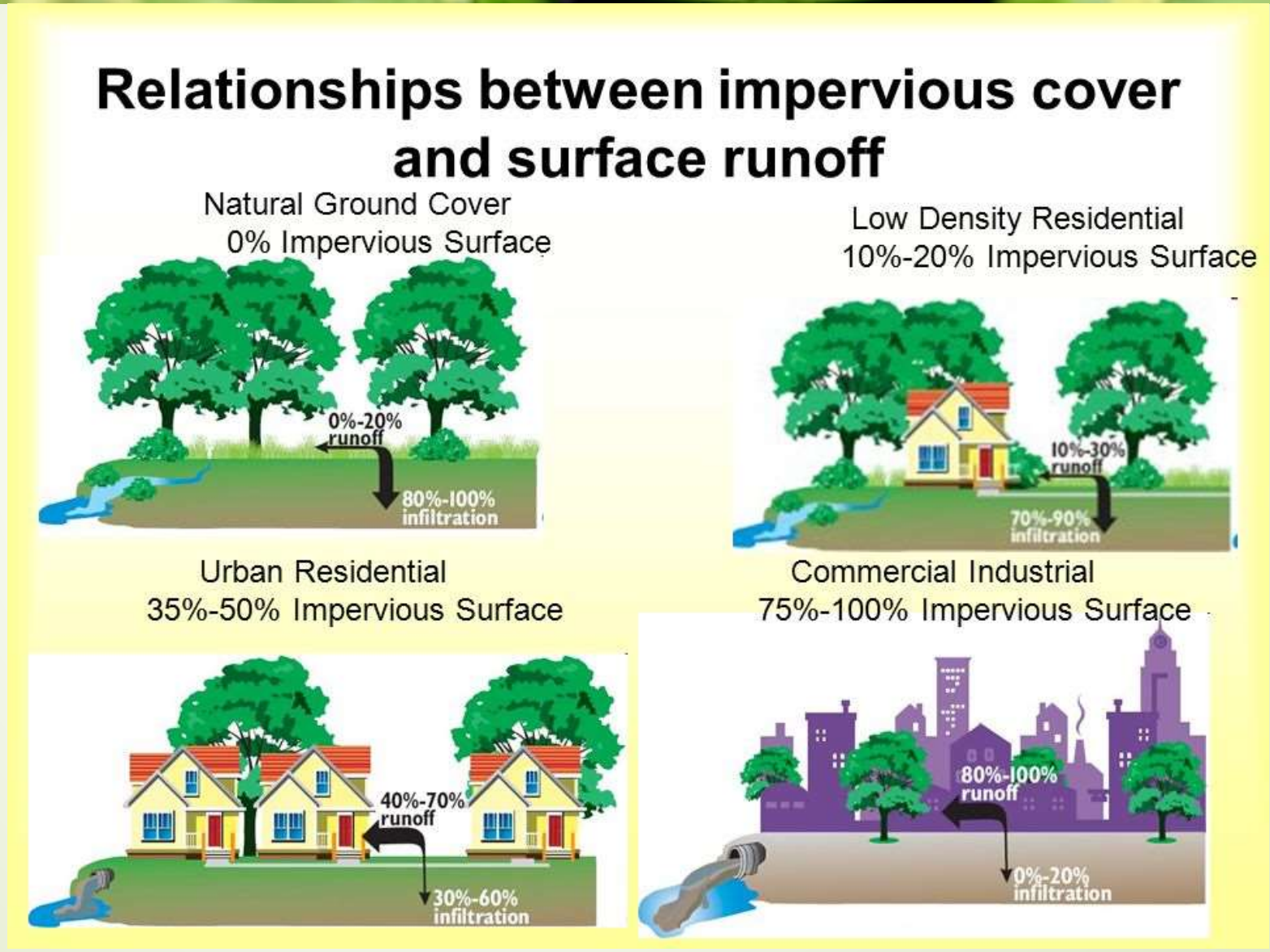
How Much Does It Rain In Austin?



Centralized Stormwater Management

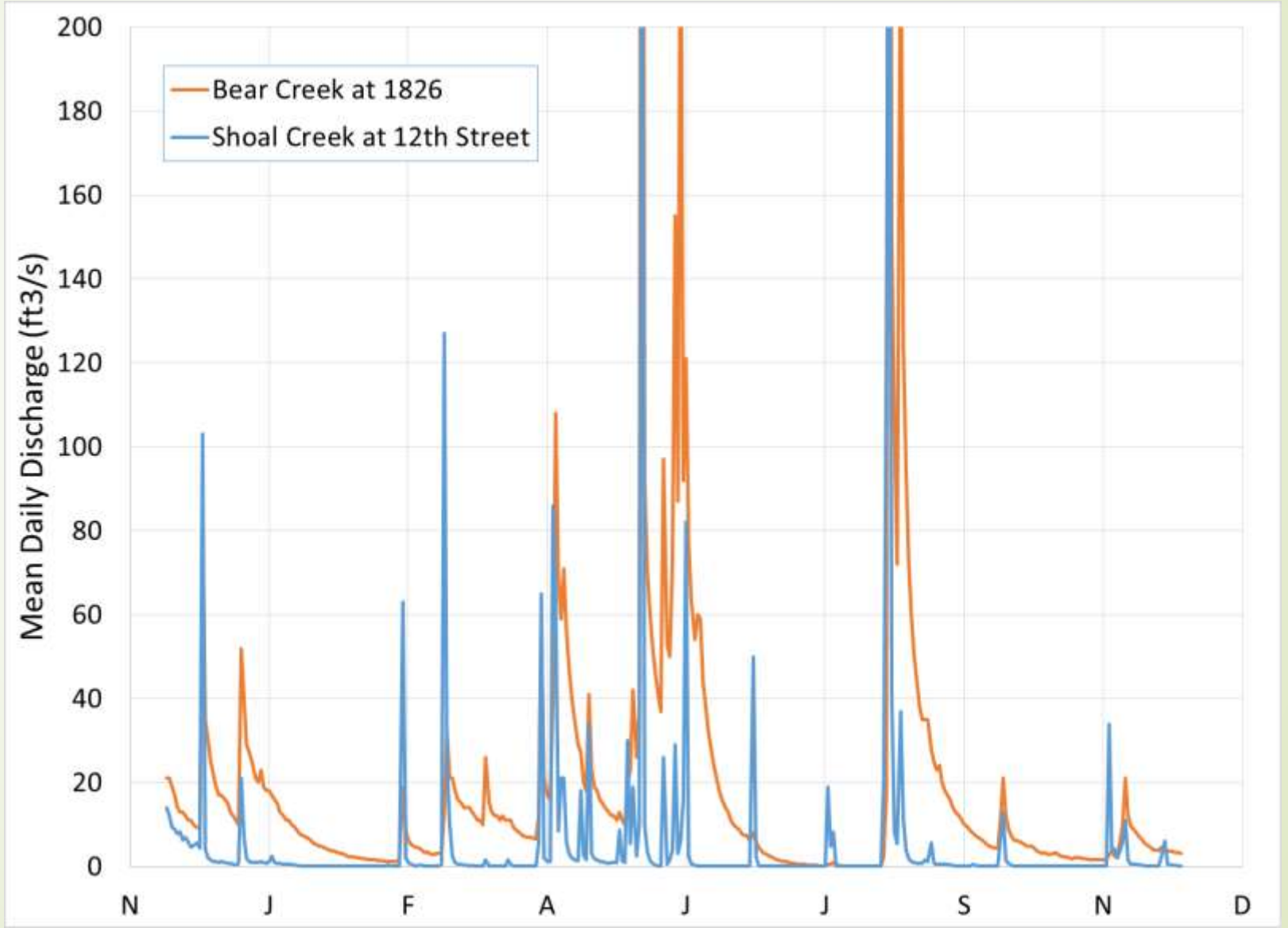


Past to Present Runoff



Journey of the Raindrop

How The Streamflow Reacts



What Is Happening To Our Streams

History of Environmental & Drainage Regulations

Waterway Ordinance

First flooding & environmental regulations.

"Natural & traditional character" concept introduced.

No "identifiable adverse flooding of other property."

1974

1986

Citywide (except Urban Wsheds), incl. BSZ.

At least ½-inch capture depth.

Critical environmental feature protection.

Water quality controls.

Stream setbacks.

Impervious cover limits.

Comprehensive Watersheds Ordinance

Hill Country Roadway Ordinance

2013

Extended stream buffers to include headwaters, erosion hazard zone and increased floodplain protections.

Watershed Protection Ordinance

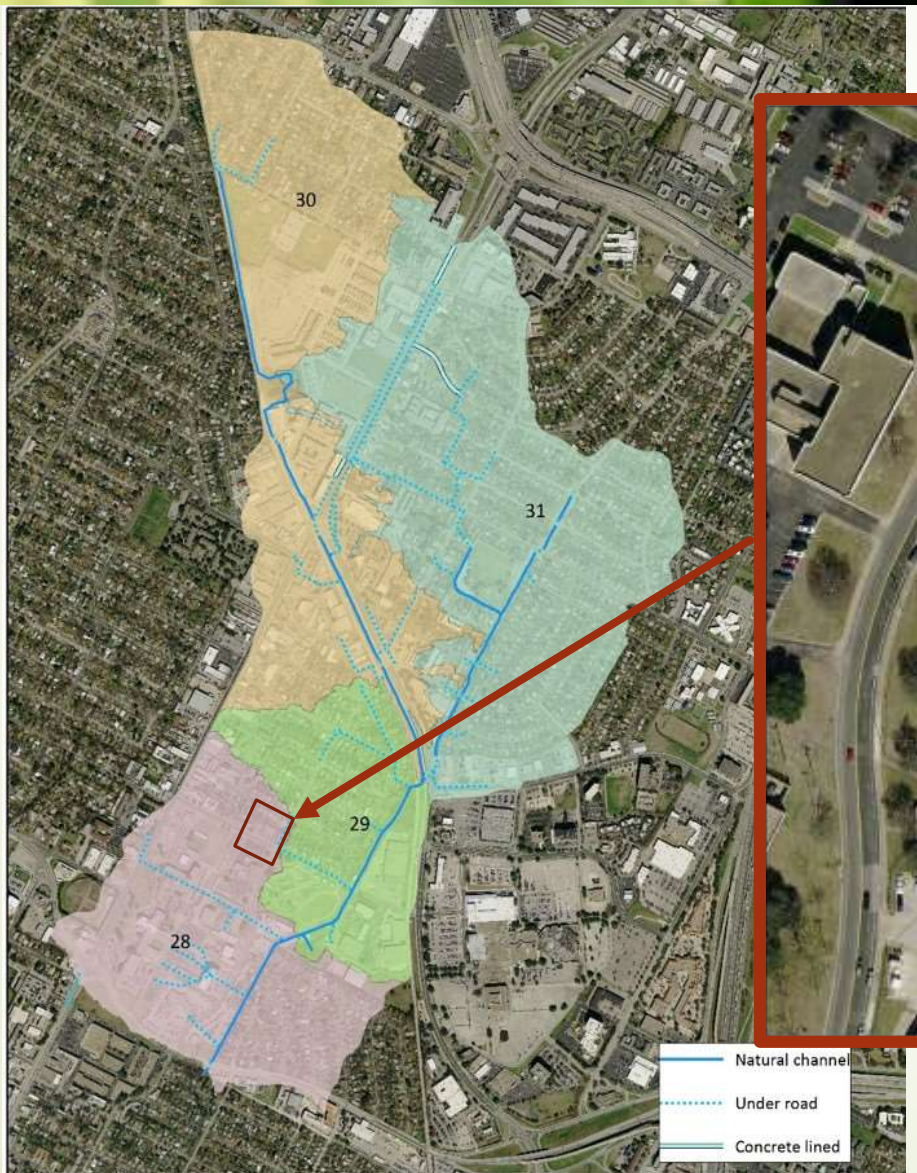
Centralized Stormwater Management

Decentralized Green Stormwater Infrastructure (GSI)

Stream Functional Pyramid

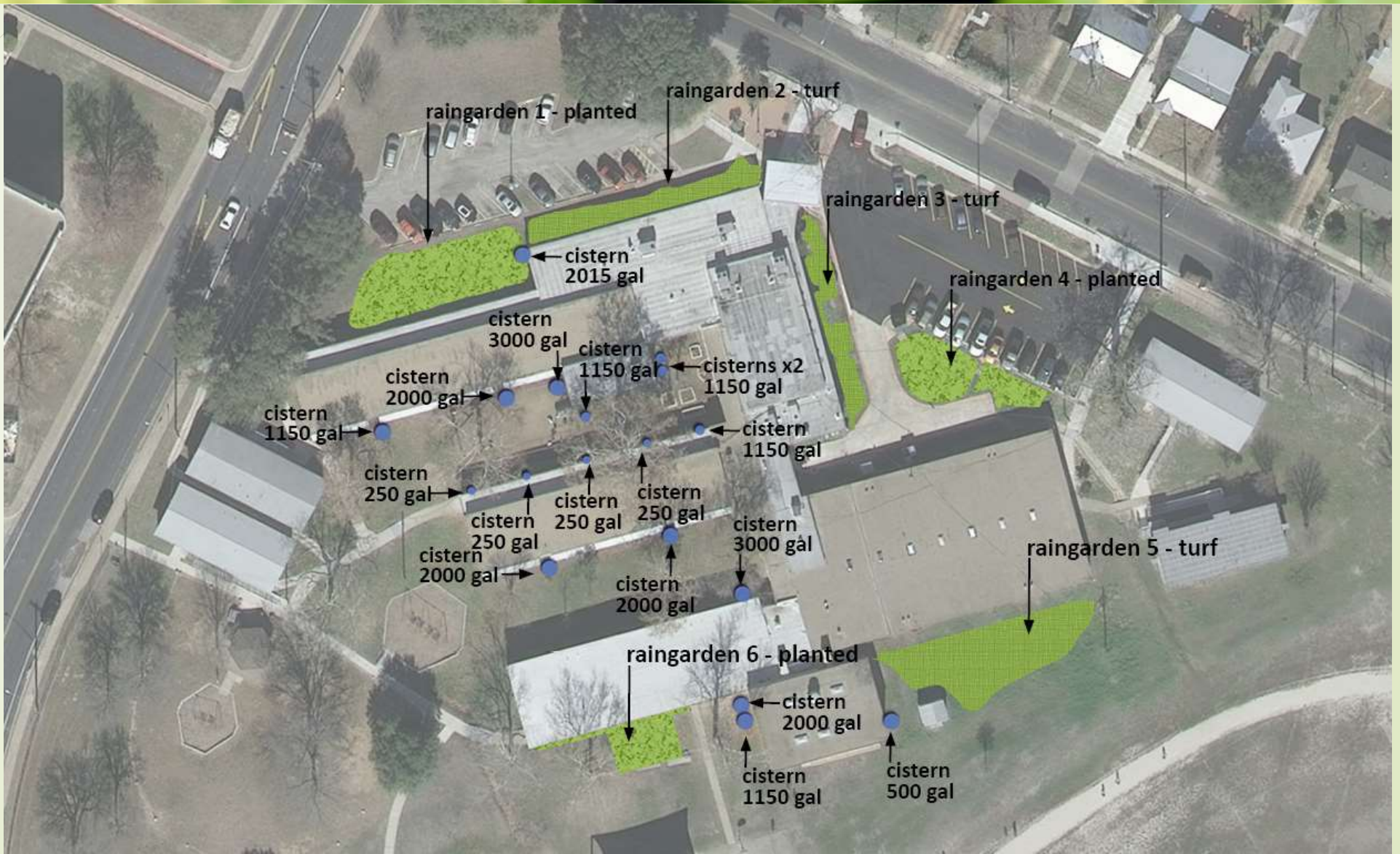
https://www.fws.gov/chesapeakebay/newsletter/fall11/Pyramid/Pyramid.html

How Reilly Elementary Was Chosen



Benefits To The School

Reilly GSI Retrofit



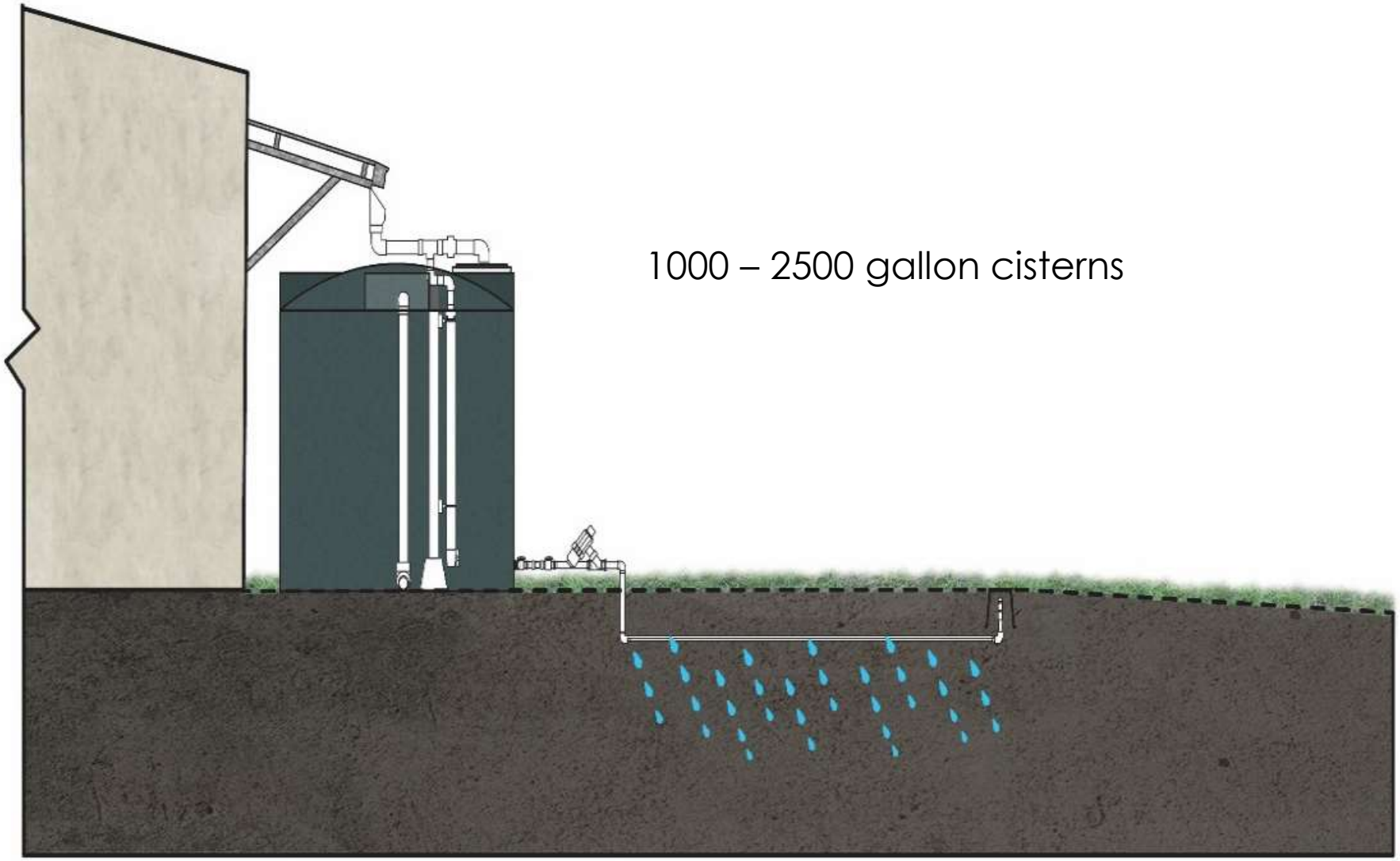
Reilly Rain Gardens

Barrington Cistern and Rain Garden

Rain Garden and Cistern Benefits

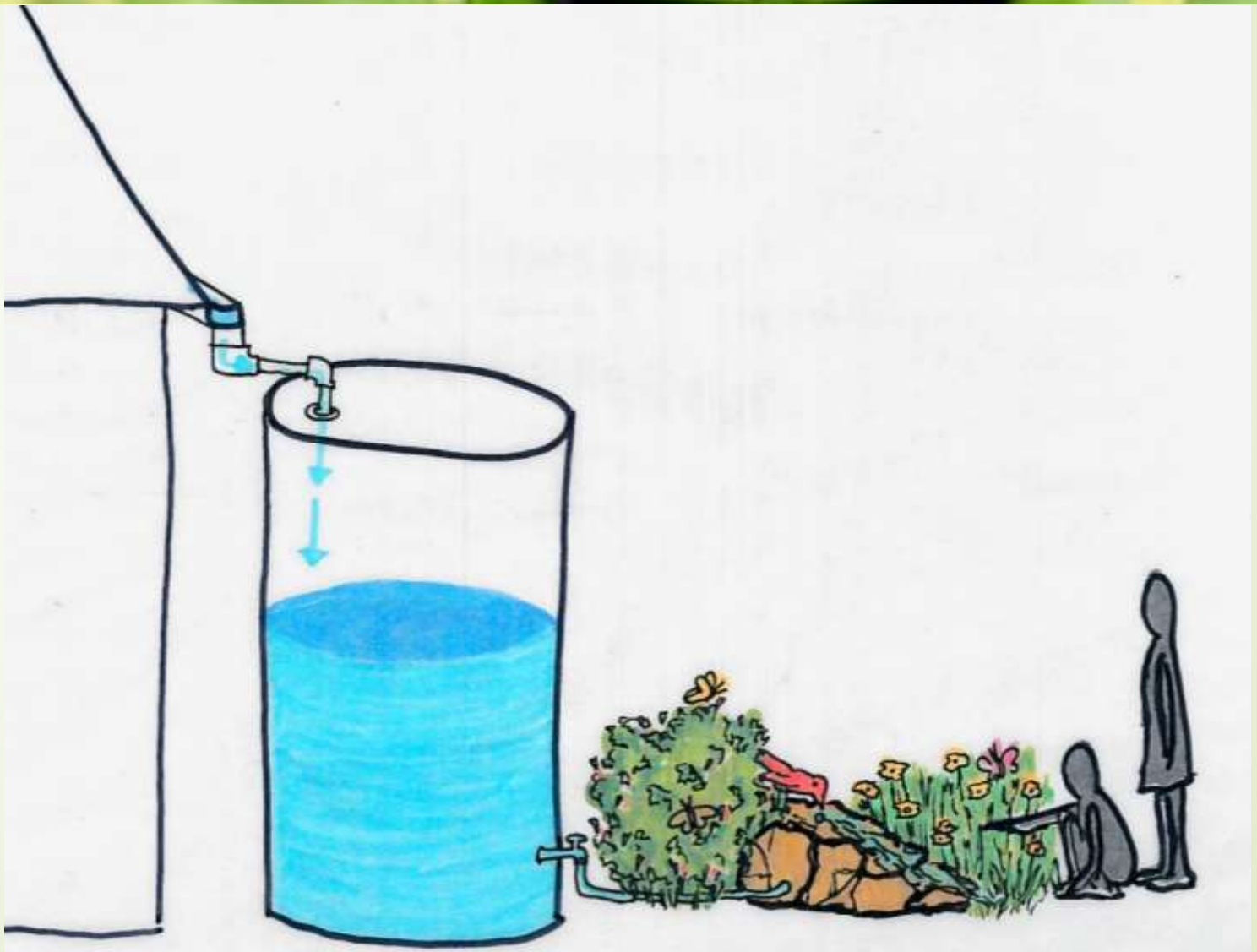
- Reduce runoff from site
- Reduce localized flooding
- Reduce erosion on site and in stream channel
- Provide deep watering for lawn and landscaping
- Creates an active and interesting space
- Water for vegetable gardens
- Reduces water use for landscaping
- Provides new playful uses of water
- Educational purposes

The Passive Cistern At Work



1000 – 2500 gallon cisterns

Provides Wildlife Watering and Monarch Habitat



Drawn by Amy Grossman

Education Planned Around GSI

SCIENCE

- Weather and climate
- Water cycle
- Infiltration
- Erosion and deposition
- Pervious vs impervious
- Runoff
- Flooding
- Native vegetation
- Root systems
- Function of living organisms
- Plant care
- Design
- Mechanics
- Composting
- Decomposition
- Soil dynamics
- Properties of water

ART

Education Planned Around GSI

Vegetation changes, playgrounds do not

Provides enriched and constantly new environment for children

Rain gardens do not need to be fenced off but can be enjoyed with simple design additions

Dry for most of the year!

Education Planned Around GSI

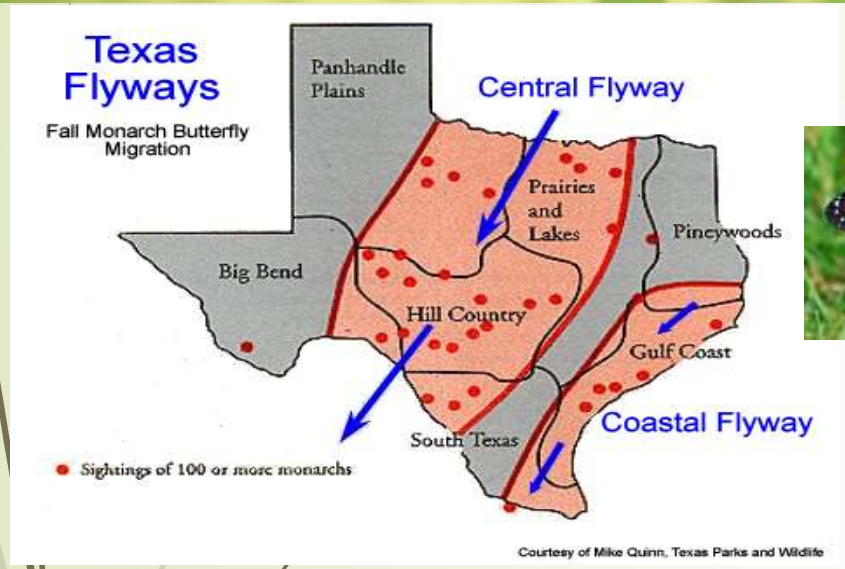
Turf rain gardens focus the visuals on the water

It was empty, then it's full of water, and a day later it's empty →"Where did the water go?"

Design for interaction

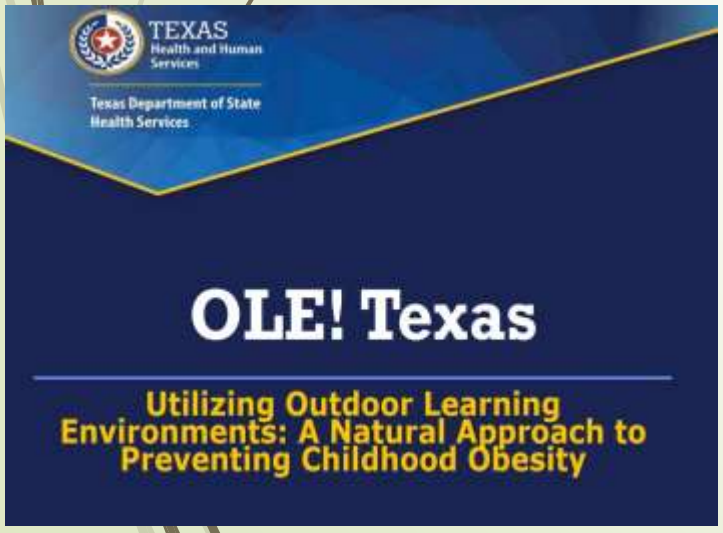
Design for maintenance

Education Planned Around GSI



How to get support/funding – overlap with other goals

Construction, materials, maintenance all cost money



Education Planned Around GSI

Not just elementary schools

- Campuses
- Parks
- Businesses
- Houses
- Apartments
- Right of Way
- Parking Lots

Additional Resources on Rain Gardens and Cisterns

- City of Austin How to Build a Rain Garden Fact Sheet
  - https://www.austintexas.gov/sites/default/files/files/Watershed/growgreen/raingarden_factsheet.pdfParks
  - http://www.austintexas.gov/department/grow-green

- Texas Water Development Board Rainwater Harvesting
  - http://www.twdb.texas.gov/innovativewater/rainwater/index.asp

Contact Us:

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