



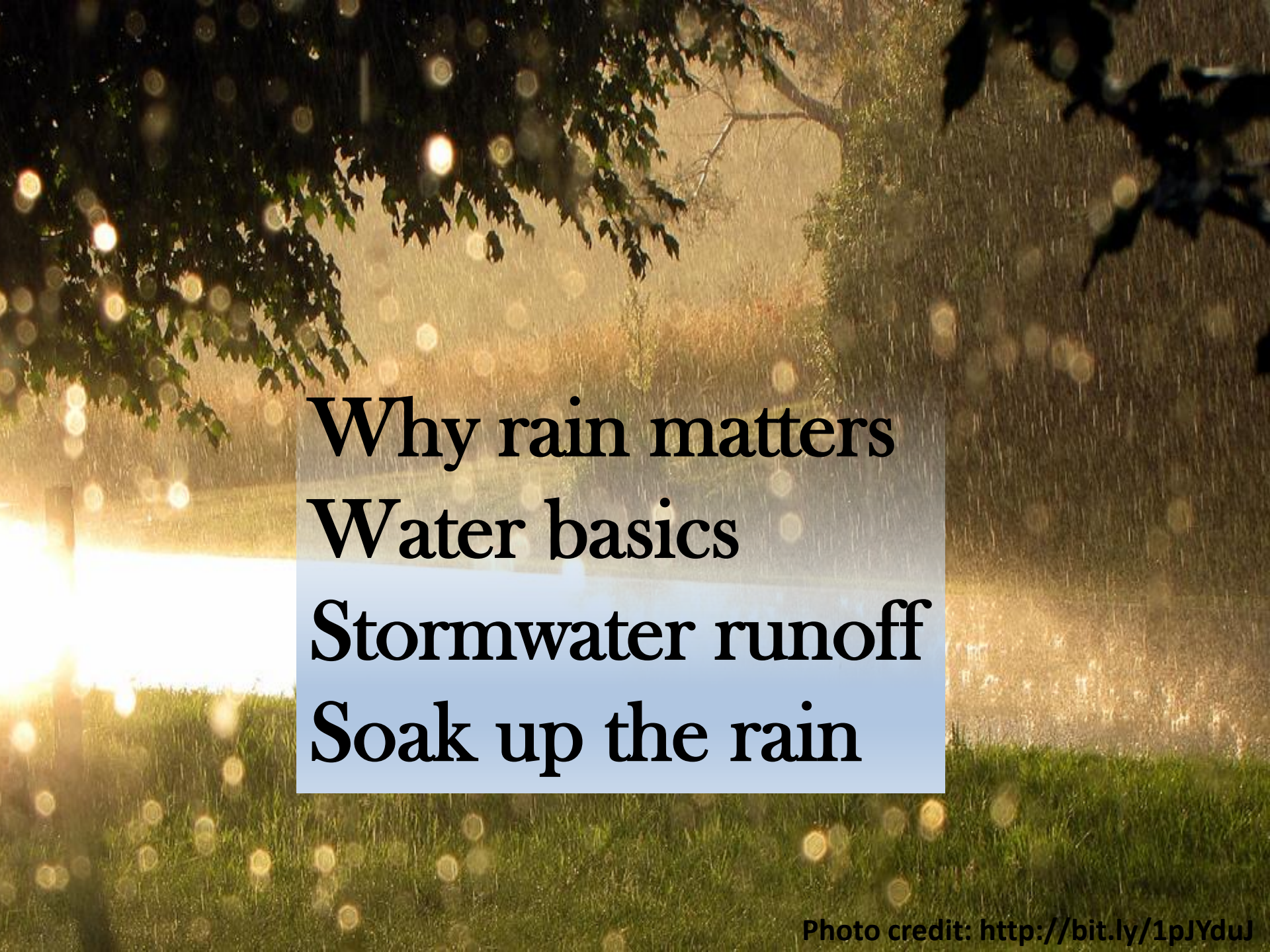
soak up the **rain**

April 8, 2014

Anne Leiby, Cindy Brown

U.S. Environmental Protection Agency

Region 1

A photograph of a rainy landscape. The scene is captured from a low angle, looking across a grassy field towards a line of trees. The sun is low on the horizon to the left, creating a bright flare and illuminating the rain falling from the sky. The rain is captured as a dense curtain of white streaks. The trees in the background are silhouetted against the bright sky. The overall mood is serene and atmospheric.

Why rain matters
Water basics
Stormwater runoff
Soak up the rain

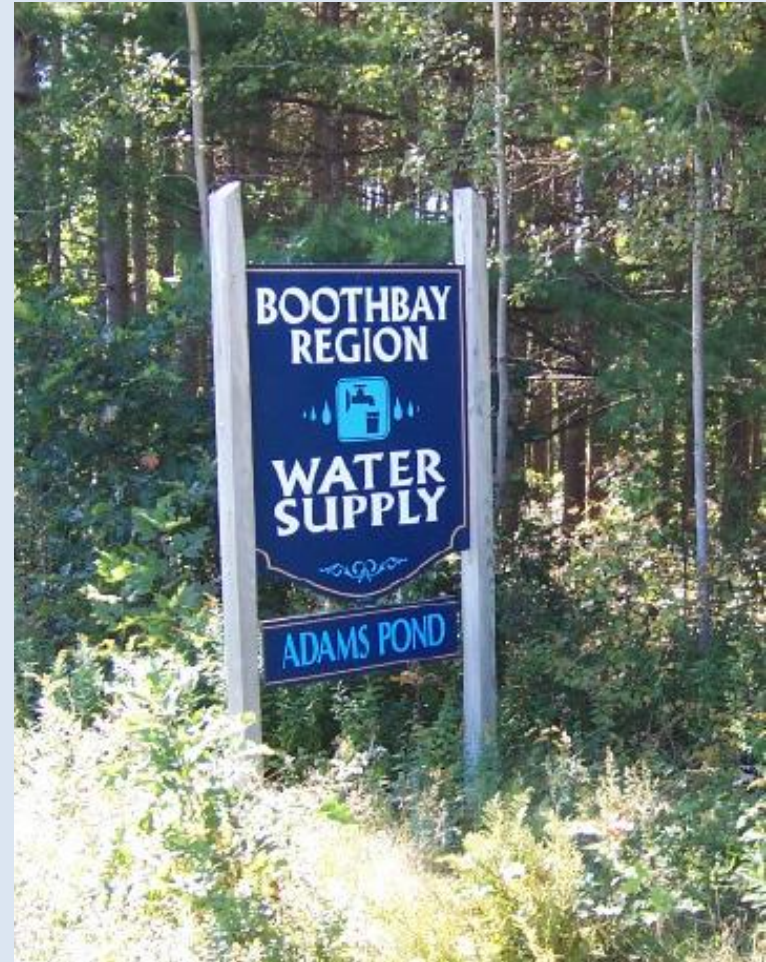
A serene landscape featuring a river or stream in the middle ground, surrounded by lush green grass in the foreground and a dense line of trees in the background. The scene is bathed in a warm, golden light, likely from a low sun, which creates a soft glow and a bright flare on the left side. A rain effect is overlaid on the entire image, with numerous vertical streaks and circular bokeh spots scattered throughout, giving it a dreamy, atmospheric quality. The text "Rain matters" is prominently displayed in the lower-left quadrant.

Rain matters

Photo credit: <http://bit.ly/1pJYduJ>



Photo: Mass.gov









Rain Matters for our Local Economy

Economic impact of swimming, fishing, boating is significant.

	Sales	Income	Jobs
Current Values	\$379 million	\$134 million	5,990

Source: The Economic Impact of Potential Decline in New Hampshire Water Quality:
The Link Between Visitor Perceptions, Usage and Spending Phase IV Report • May 2007

Water Basics: Watershed

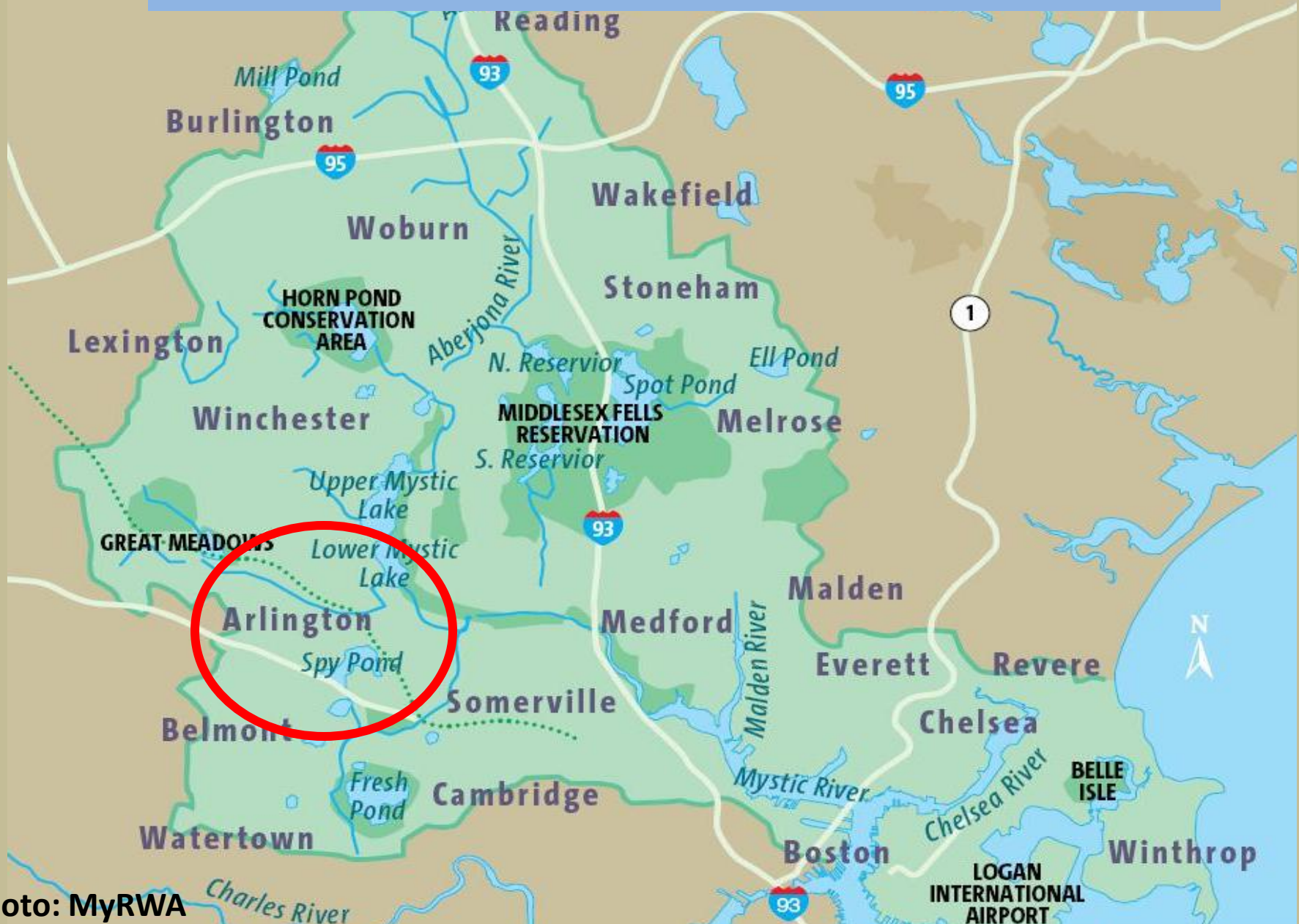


Photo: MyRWA

Water Basics: Water Cycle

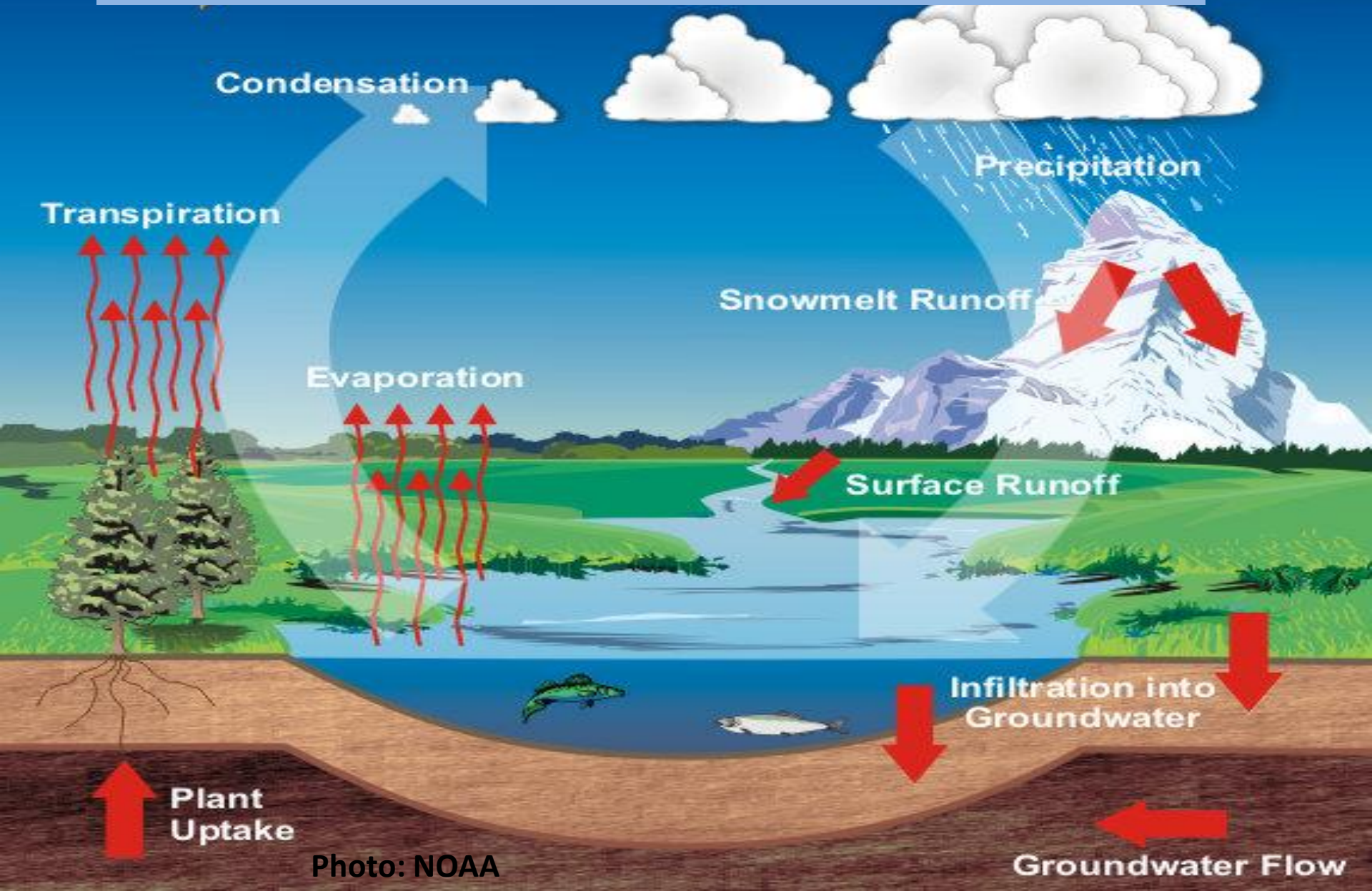
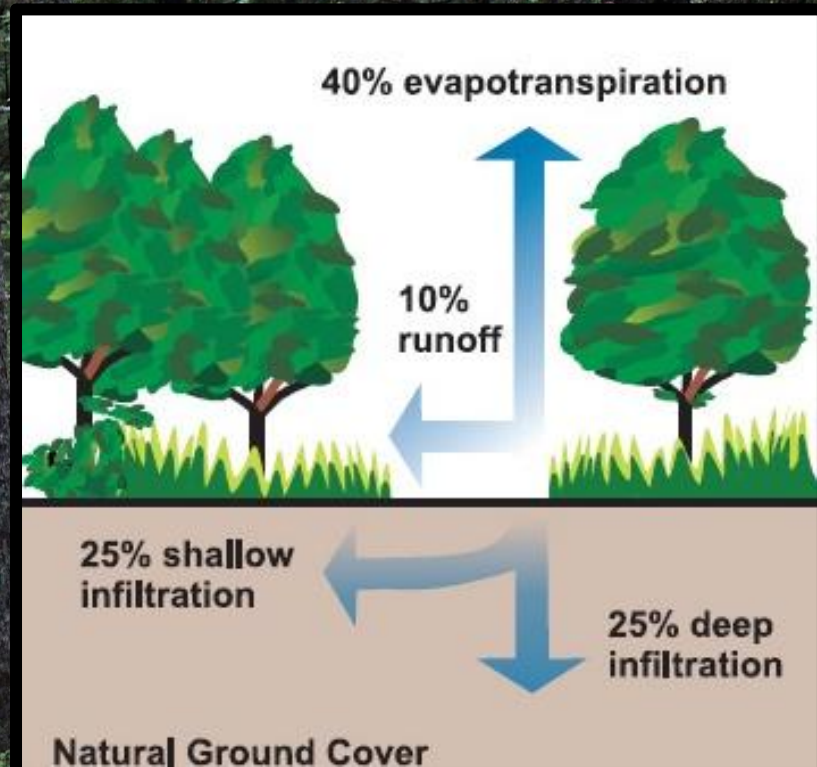


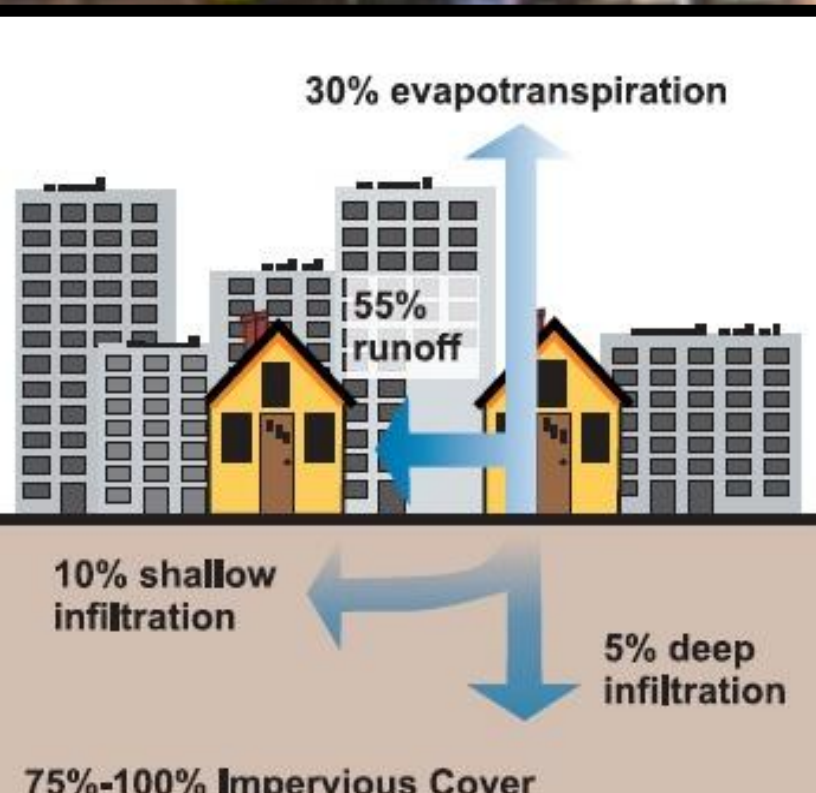
Photo: NOAA

Groundwater Flow

Water Basics: Natural Areas



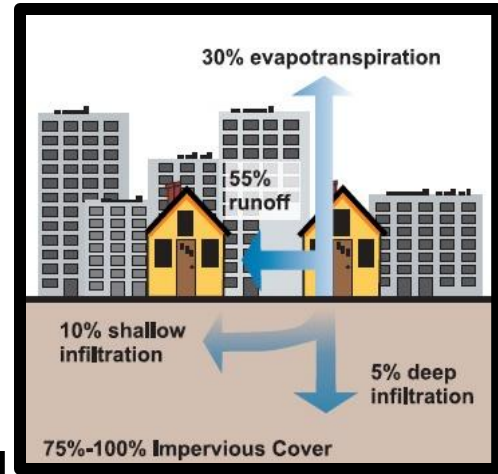
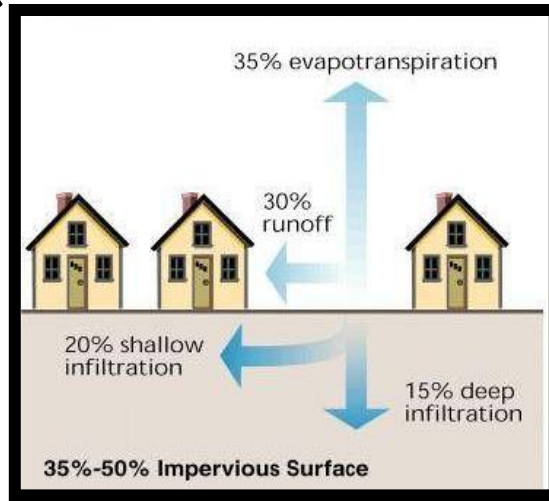
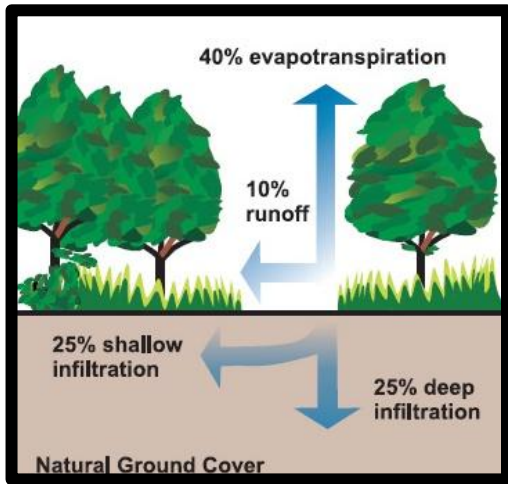
Water Basics: Developed Areas



Increased Runoff

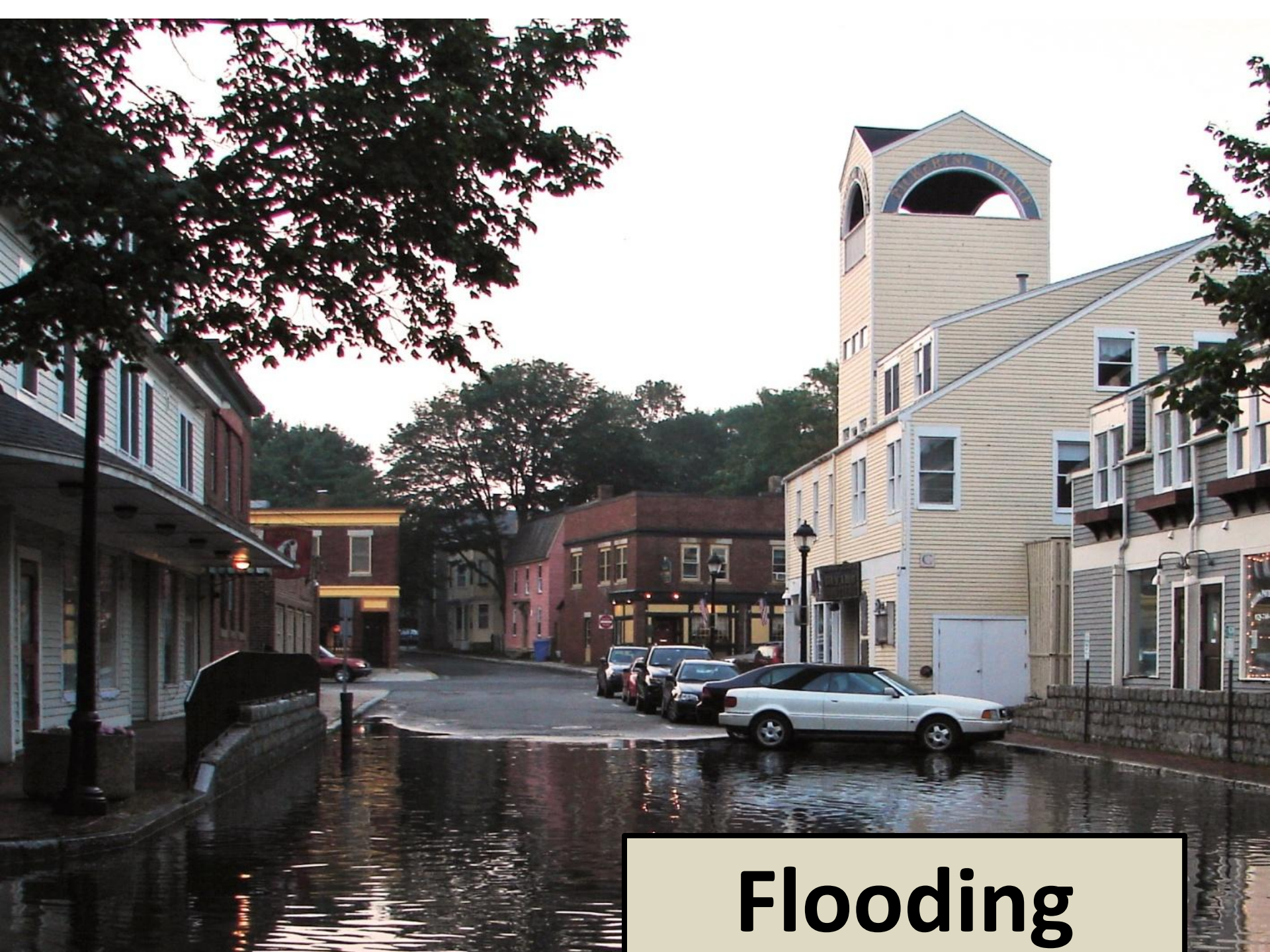


Increased impervious surface



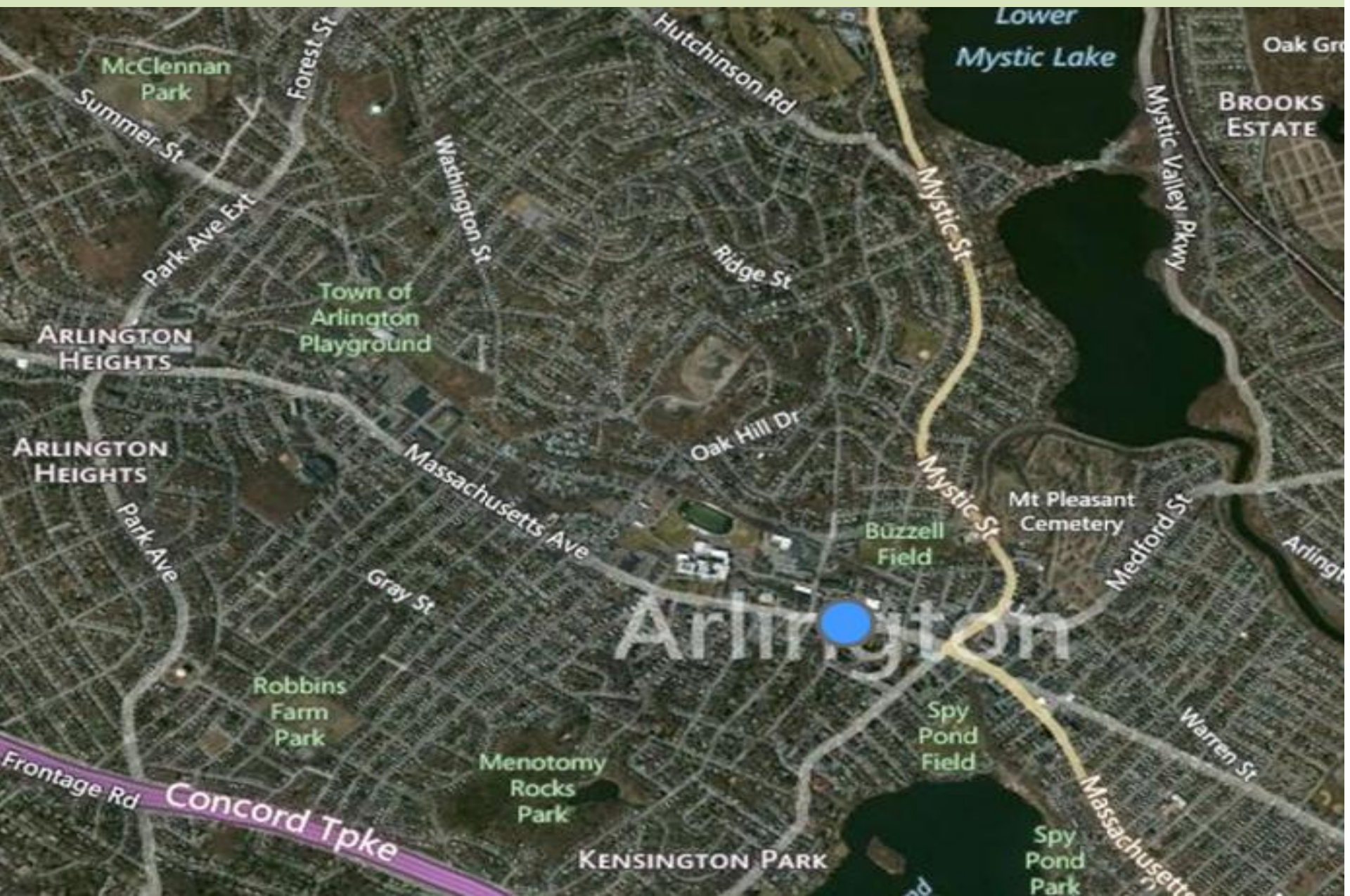
Reduced Infiltration





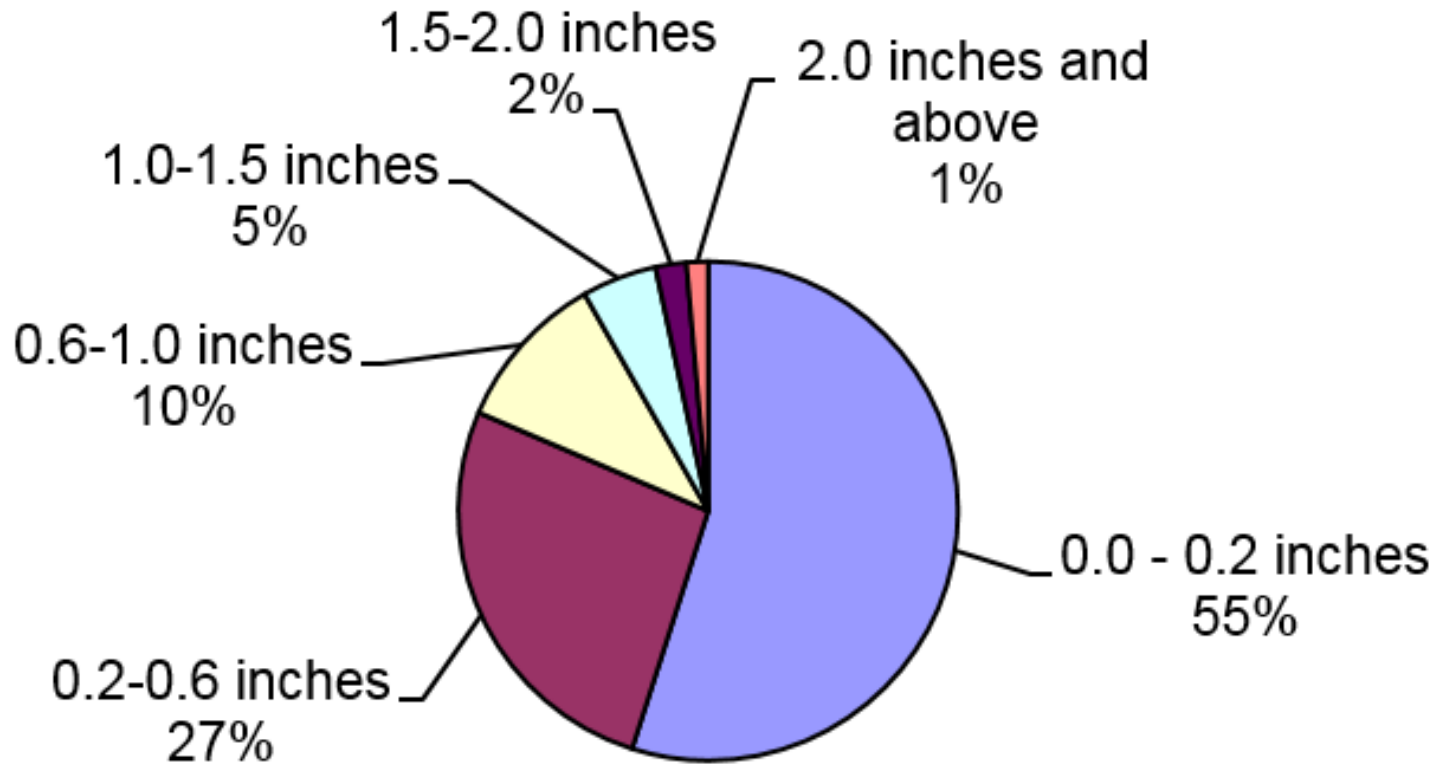
Flooding

More than 40% impervious surface



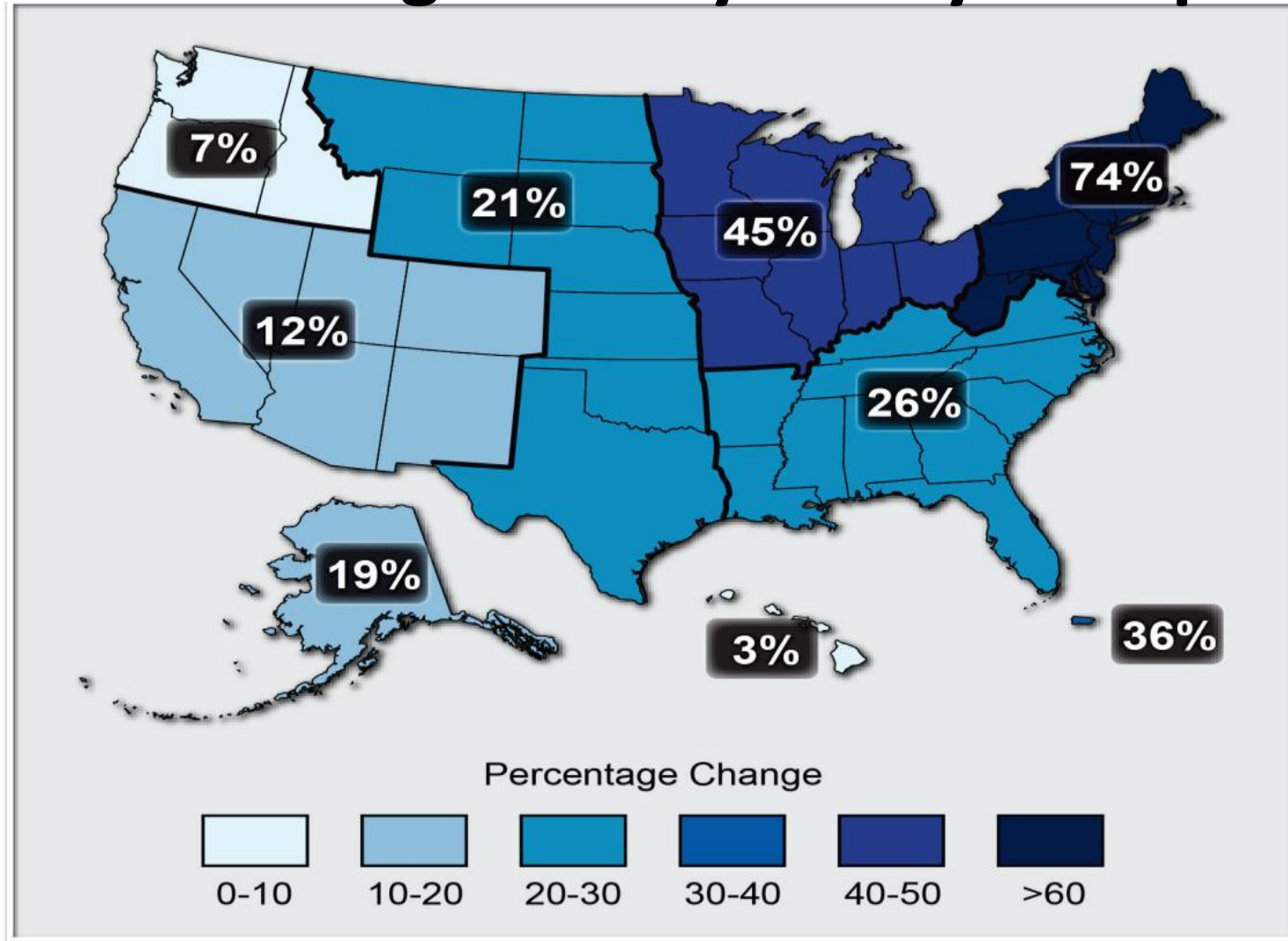
Water Basics: Historic rainfall patterns

Percentage of Total Number of Rainfall Events Based on Size of Rain Events (Boston, MA 1948-2004)



Water Basics: Changing patterns

Percent Change in Very Heavy Precipitation



What's in stormwater runoff?





Pollutants

Fertilizer

Animal waste

Sediment

Oil & metals

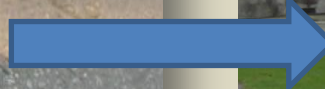
Trash

Clippings & leaves

Where does runoff go?




**Polluted runoff flowing into a storm drain gets treated at a wastewater treatment plant.
True or False**



**False !!
Most polluted
runoff flows
untreated to
our lakes,
rivers, and
streams.**





A photograph of a pond completely covered in a thick layer of bright green algae. The pond is surrounded by a dense forest of green trees. The sky is clear and blue. The text "Pollutants: Nutrients" is overlaid in white on the center of the image.

Pollutants: Nutrients

Pollutants: Bacteria





Pollutants: Sediment

The Local Economy

Perceived water quality decline could mean varying economic losses for state's regions.

Lakes Region	Lost Sales	Lost Income	Lost Jobs
Clarity & purity	\$25 million	\$8.8 million	396
Water level & flow	\$15.3 million	\$5.5 million	247
Views & scenery	\$14.4 million	\$5.1 million	231
Crowding	\$9.5 million	\$3.3 million	149

Source: The Economic Impact of Potential Decline in New Hampshire Water Quality: The Link Between Visitor Perceptions, Usage and Spending Phase IV Report • May 2007

ASH The Best Way
to Find an
Apartment

Stormwater runoff is one of the most significant water pollution problems in New England.






soak up the **rain**

Prevent water pollution

Reduce flooding

Protect our water resources

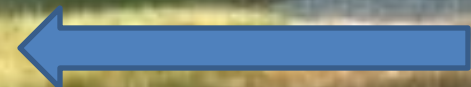
Beautify our neighborhoods



**Where does
your downspout
drain?**

Rain Barrels

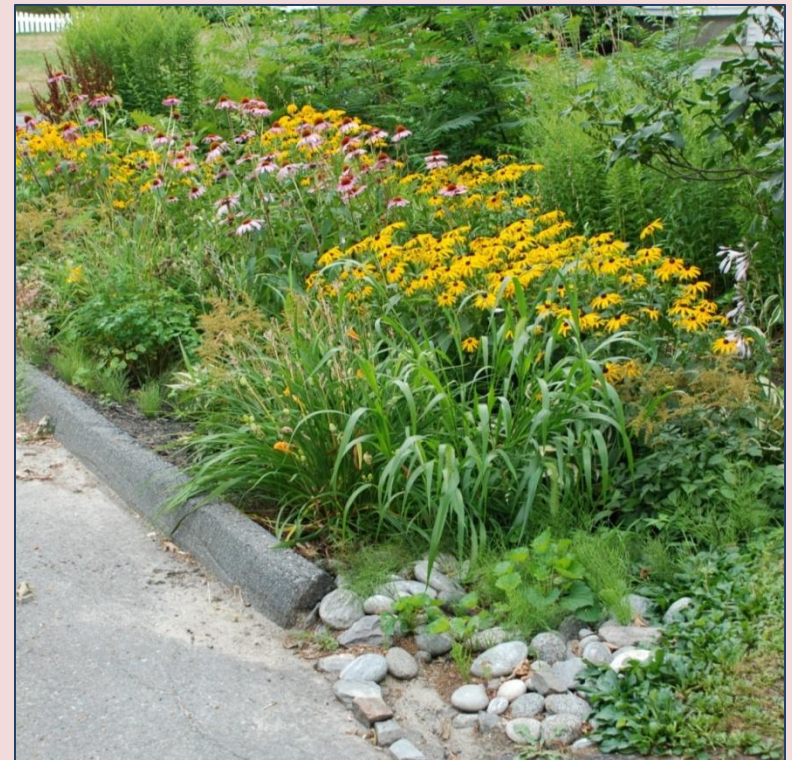


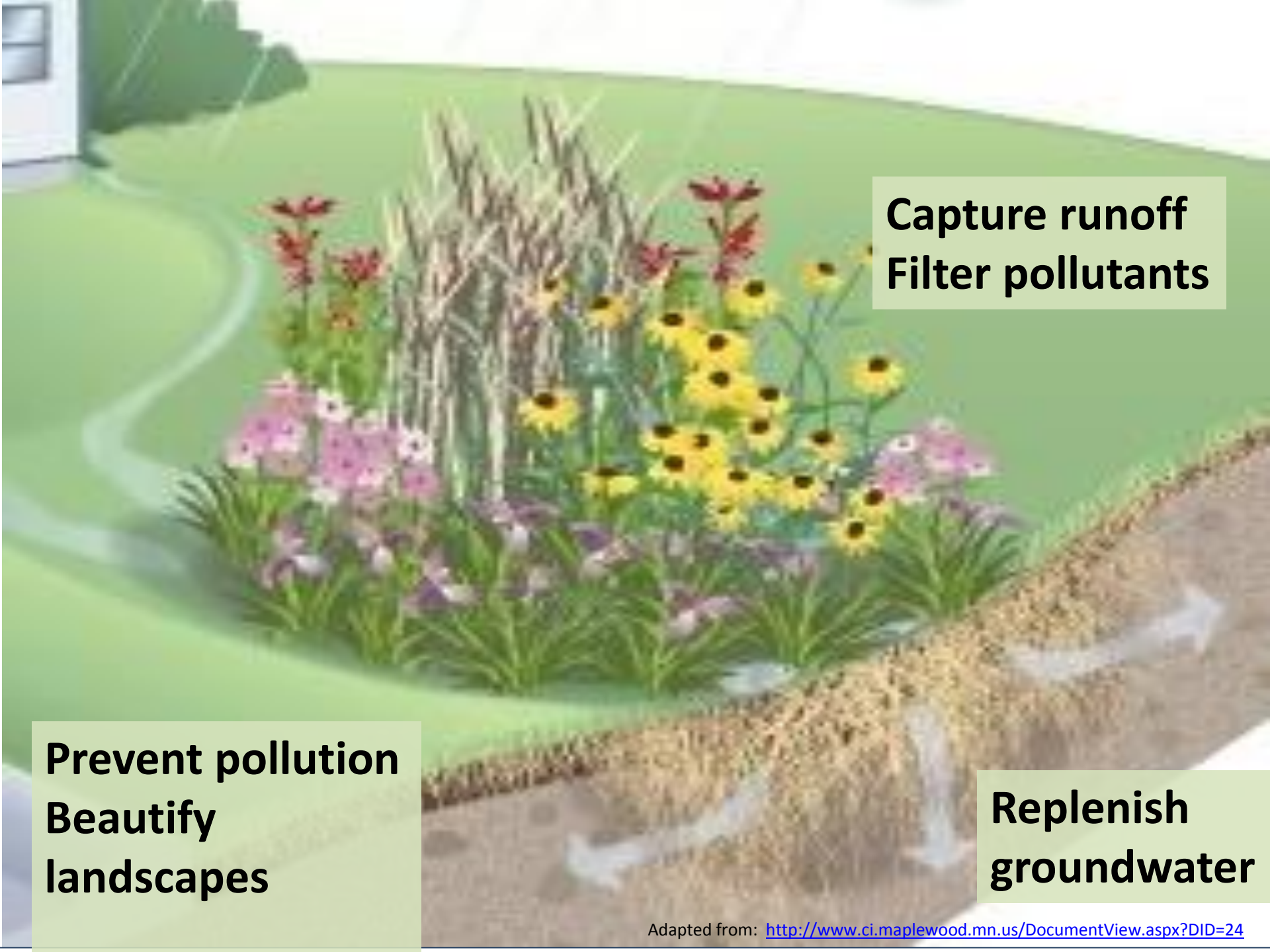


**Downspout
redirected to a
rain garden**

Rain gardens

More than just a pretty garden





**Capture runoff
Filter pollutants**

**Prevent pollution
Beautify
landscapes**

**Replenish
groundwater**

Rain garden at work





**A rain garden should be planted
with wetland plants.**

True or False

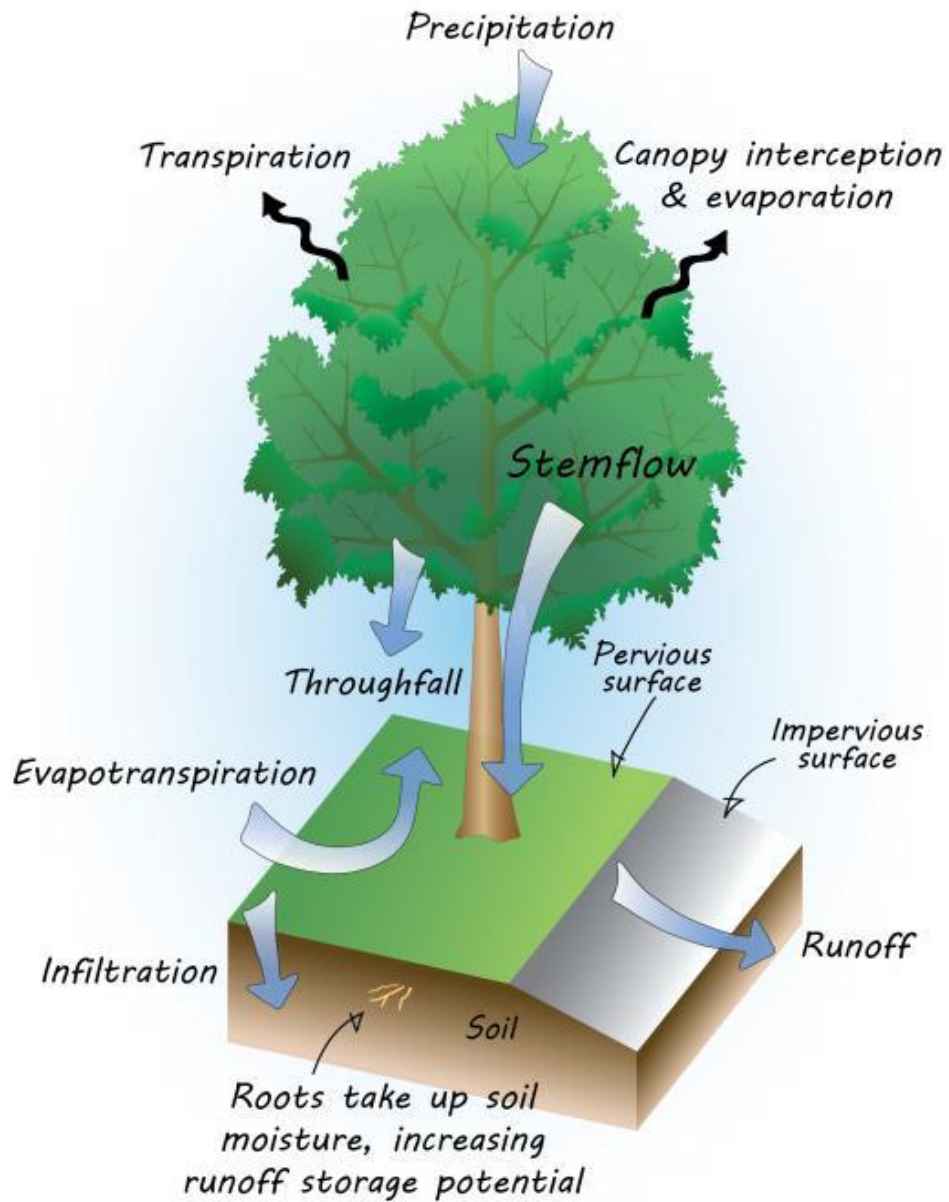


False!!

Trees



soak up the rain



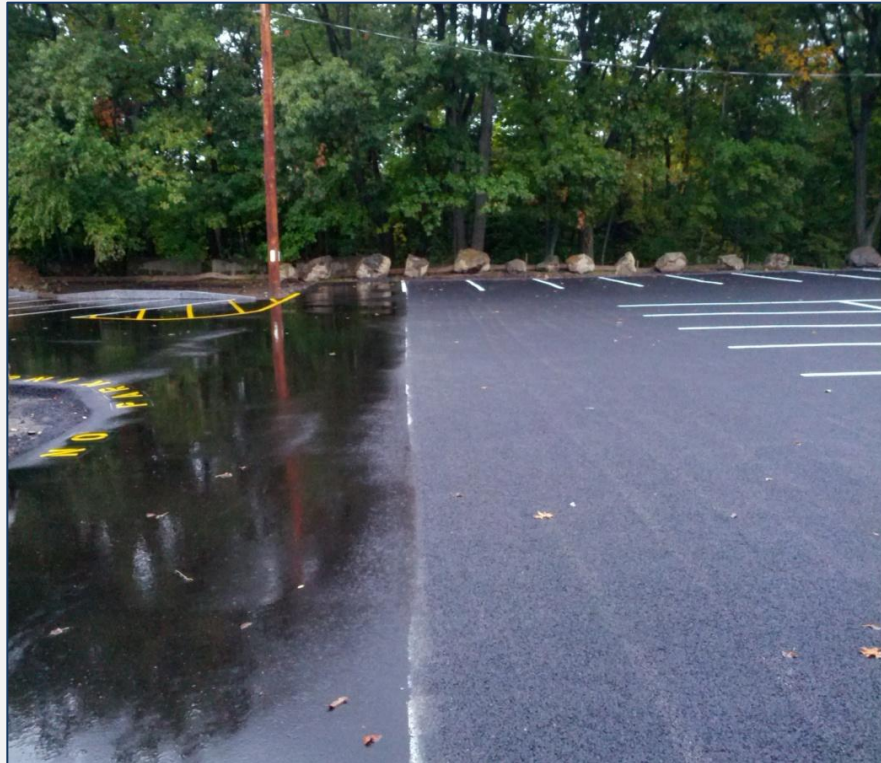
Plant trees



Preserve and protect trees



Permeable surfaces soak up the rain



**Traditional vs. porous asphalt
Arlington, MA**



Pavers



- soak in more than 80 percent of rain
- filter out pollutants
- reduce the need for road salt



**An alley soaking up
the rain**





Green Roof

Green roofs



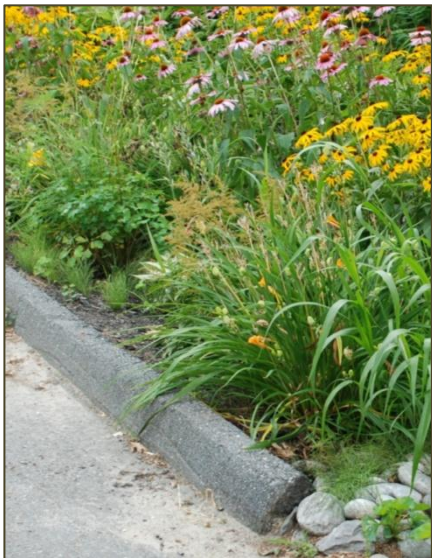
- **improve building energy efficiency**
- **reduce noise levels**
- **increase durability and lifespan of roof**



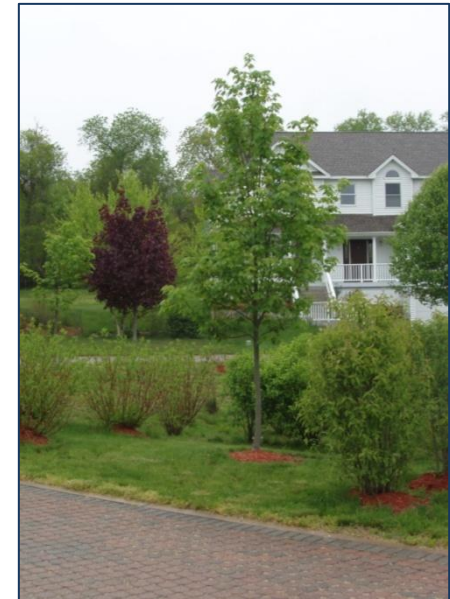
**We can
make a
difference**



soak up the rain



**How will
you soak up
the rain?**



Connect the drops



Keep pollutants out of runoff and storm drains





soak up the rain



**Getting involved
Sharing what we learn**

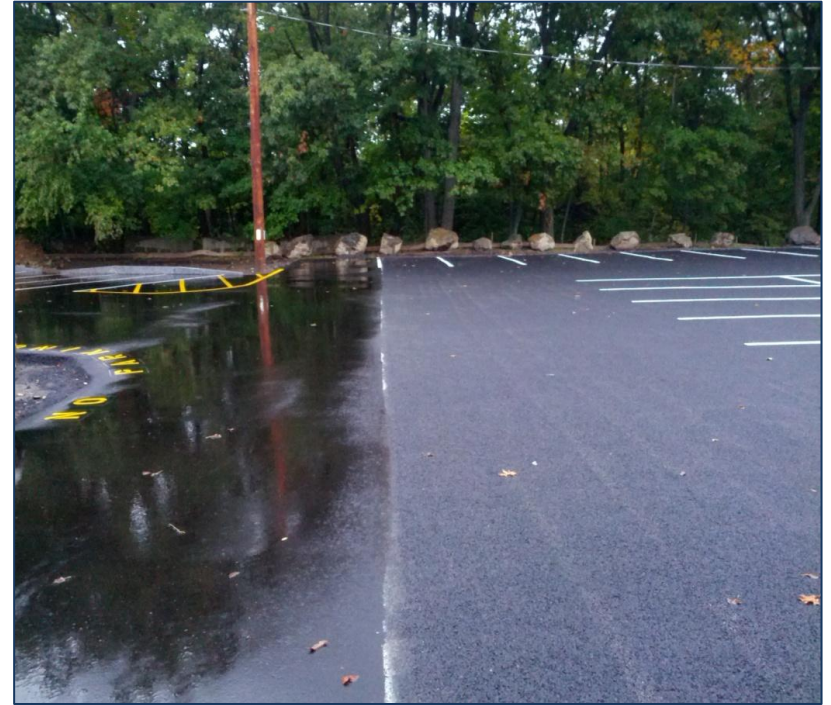
**Rain garden
Hardy School
Arlington, MA**

Photos: MyRWA

Arlington



soak up
the rain



**Porous asphalt
Hurd Field
Arlington, MA**



soak up the rain

Learn More
Take Action
Share Your Story

<http://www.epa.gov/region1/soakuptherain>

soakuptherain@epa.gov