TREES WORK FOR CLEAN WATER

ARBOR DAY POSTER CONTEST—2020-21

WHERE DOES WATER GO WHEN THERE IS TOO MUCH OF IT?

- Let's get started:

- Who has seen an area flood from too much rain? Or a creek or lake overflowing its banks?

- Can you think of a time when you saw puddles form on a parking lot?
- Do you have experience with a flooding stream or a flooded basement?

WHERE DOES WATER GO WHEN THERE IS TOO MUCH OF IT?

- Flooding in town is a little different than flooding out of town

- Questions to Consider:
- Where does all of the water go?
- Why does flooding happen so fast in town?

TREES USE THEIR ROOTS TO HELP WITH FLOODING

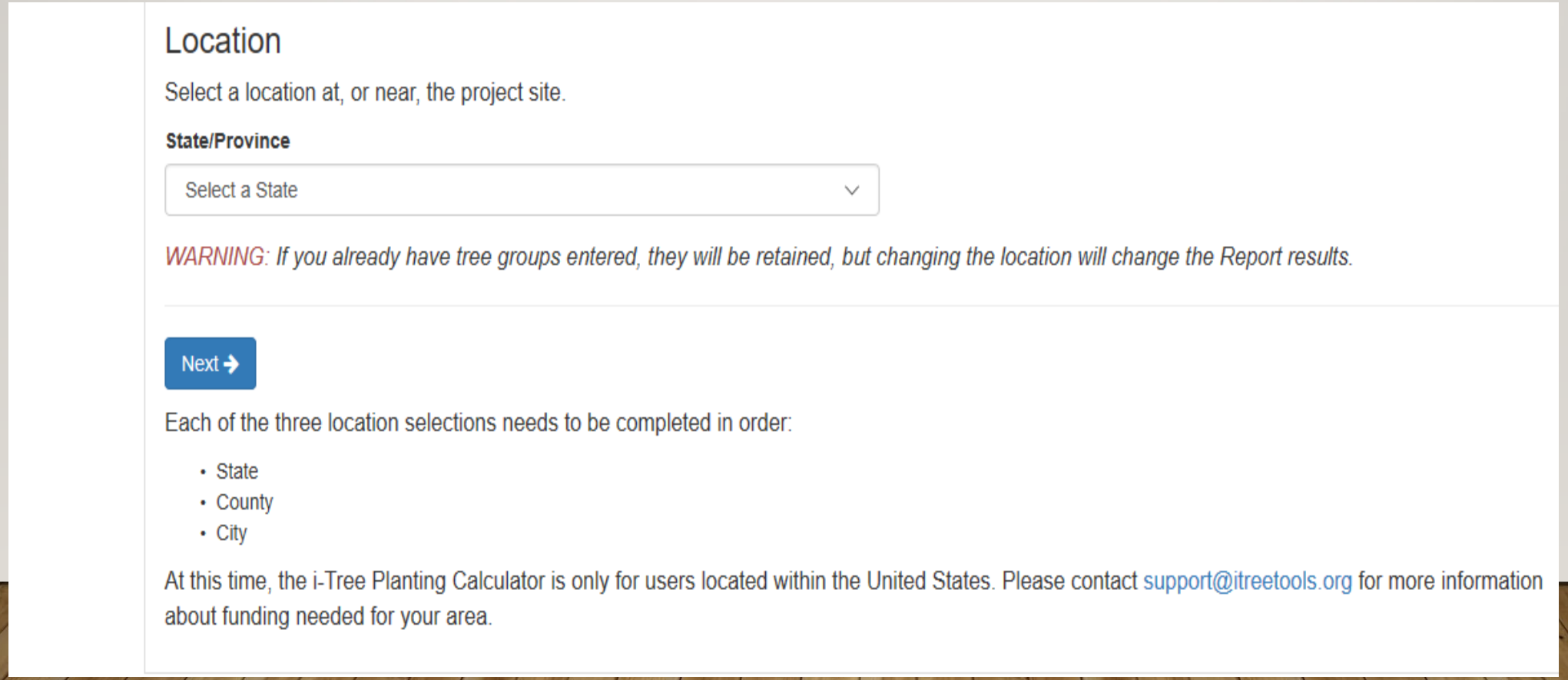
- Trees can use enormous amounts of water and they take water up by their roots
- Trees can help keep areas from flooding by taking up water

TREES HELP TO CLEAN OUR WATER TOO

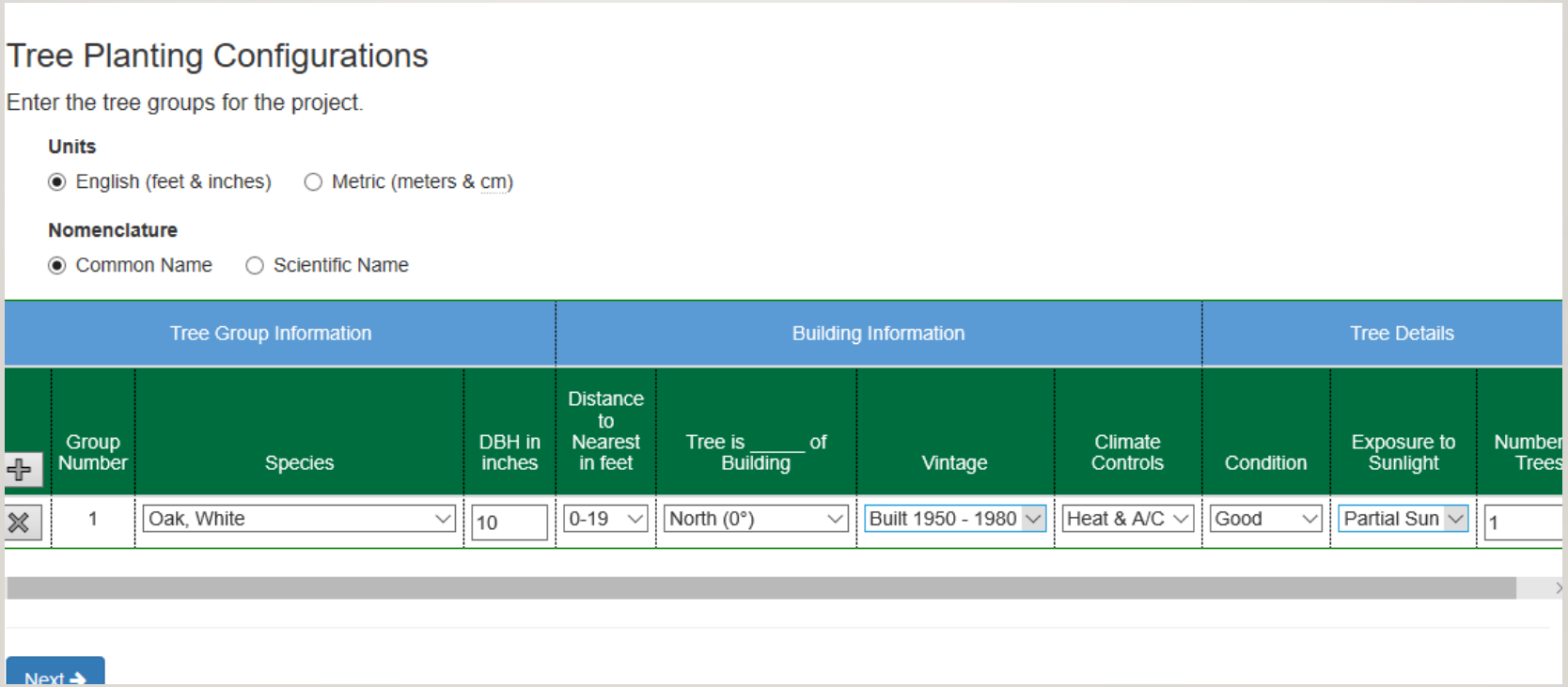
- Trees take up water as it runs off, after it rains.
- They clean and filter water as it goes through roots, up the trunk (or stem) and into the leaves.
- Extra water goes out the leaves as Transpiration (or Evapotranspiration)--this is part of the water cycle!

JUST HOW MUCH WATER DOES A TREE TAKE UP THROUGH ITS ROOTS?

- https://planting.itreetools.org/app/location/



ITREE PLANTING TOOL WITH WHITE OAK AS AN EXAMPLE



Tree Planting Configurations

Enter the tree groups for the project.

Units

(•) English (feet & inches) ( ) Metric (meters & cm)

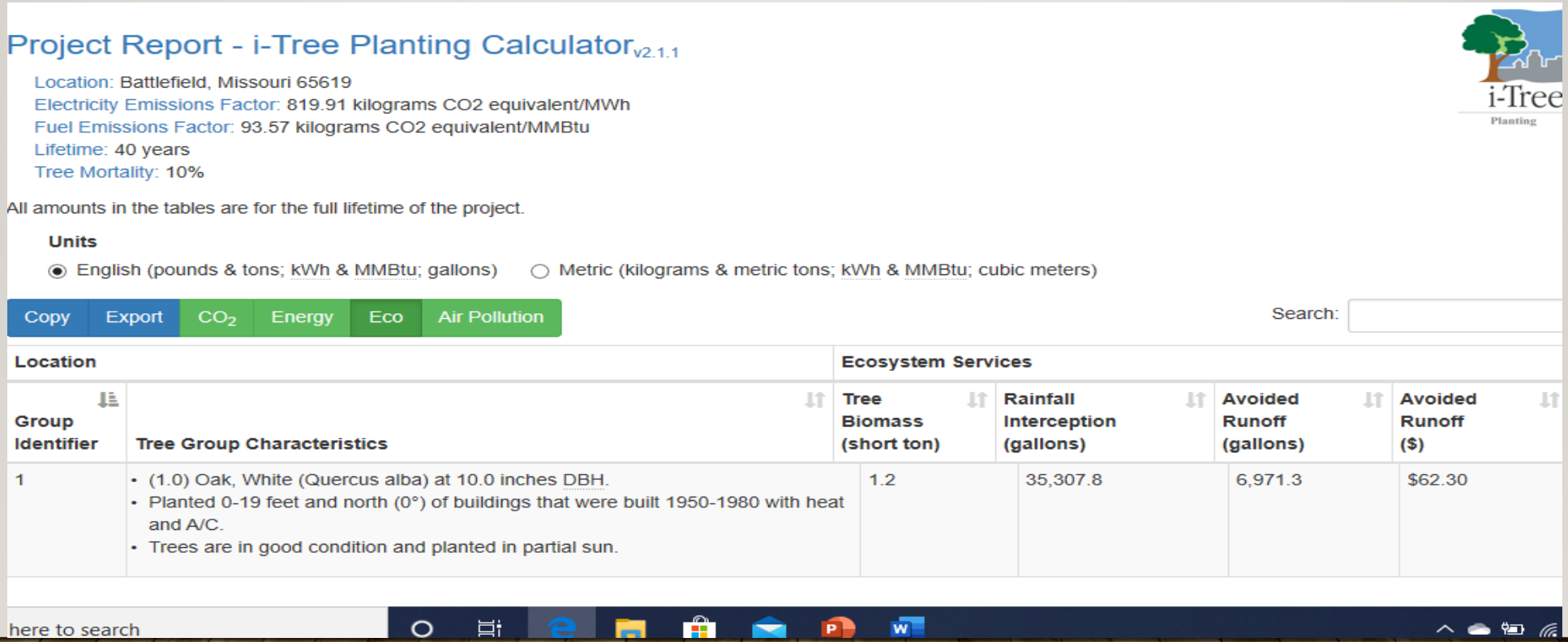
Nomenclature

(•) Common Name ( ) Scientific Name

	Tree Group Information			Building Information				Tree Details		
	Group Number	Species	DBH in inches	Distance to Nearest in feet	Tree is _____ of Building	Vintage	Climate Controls	Condition	Exposure to Sunlight	Number Trees
	1	Oak, White	10	0-19	North (0°)	Built 1950 - 1980	Heat & A/C	Good	Partial Sun	1

Next

ITREE PLANTING TOOL WITH WHITE OAK AS AN EXAMPLE



Project Report - i-Tree Planting Calculator v2.1.1

Location: Battlefield, Missouri 65619
Electricity Emissions Factor: 819.91 kilograms CO2 equivalent/MWh
Fuel Emissions Factor: 93.57 kilograms CO2 equivalent/MMBtu
Lifetime: 40 years
Tree Mortality: 10%

All amounts in the tables are for the full lifetime of the project.

Units

(•) English (pounds & tons; kWh & MMBtu; gallons) ( ) Metric (kilograms & metric tons; kWh & MMBtu; cubic meters)

Copy | Export | CO_2 | Energy | Eco | Air Pollution

Search:

Location		Ecosystem Services			
Group Identifier	Tree Group Characteristics	Tree Biomass (short ton)	Rainfall Interception (gallons)	Avoided Runoff (gallons)	Avoided Runoff ($)
1	• (1.0) Oak, White (Quercus alba) at 10.0 inches DBH. • Planted 0-19 feet and north (0°) of buildings that were built 1950-1980 with heat and A/C. • Trees are in good condition and planted in partial sun.	1.2	35,307.8	6,971.3	$62.30

here to search

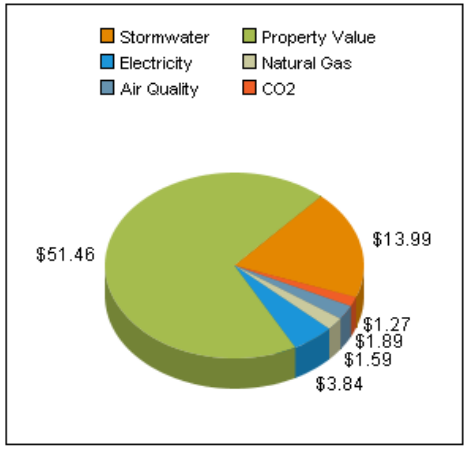
TREES AND STORMWATER REPRESENTED ANOTHER WAY

FROM THE NATIONAL TREE BENEFITS WEBSITE, CASEY TREES AND DAVEY, 2020

National Tree Benefit Calculator

Beta

Overal Benefits | Storm Water | Property Value | Energy | Air Quality | CO2 | About the Model



Breakdown of your tree's benefits
Click on one of the tabs above for more detail

This **10 inch White oak** provides overall benefits of: $74 every year.

While some functional benefits of trees are well documented, others are difficult to quantify (e.g., human social and communal health). Trees' specific geography, climate, and interactions with humans and infrastructure is highly variable and makes precise calculations that much more difficult. Given these complexities, the results presented here should be considered initial approximations—a general accounting of the benefits produced by urban street-side plantings.

Benefits of trees do not account for the costs associated with trees' long-term care and maintenance.

If this tree is cared for and grows to 15 inches, it will provide $96 in annual benefits.

White oak
Quercus alba

STORM WATER MANAGER

- A storm water manager is a job for someone who helps control where water goes in towns when it rains.
- Storm Water Managers use Best Management Practices (or BMPs) when deciding how to build a parking lot or a driveway.

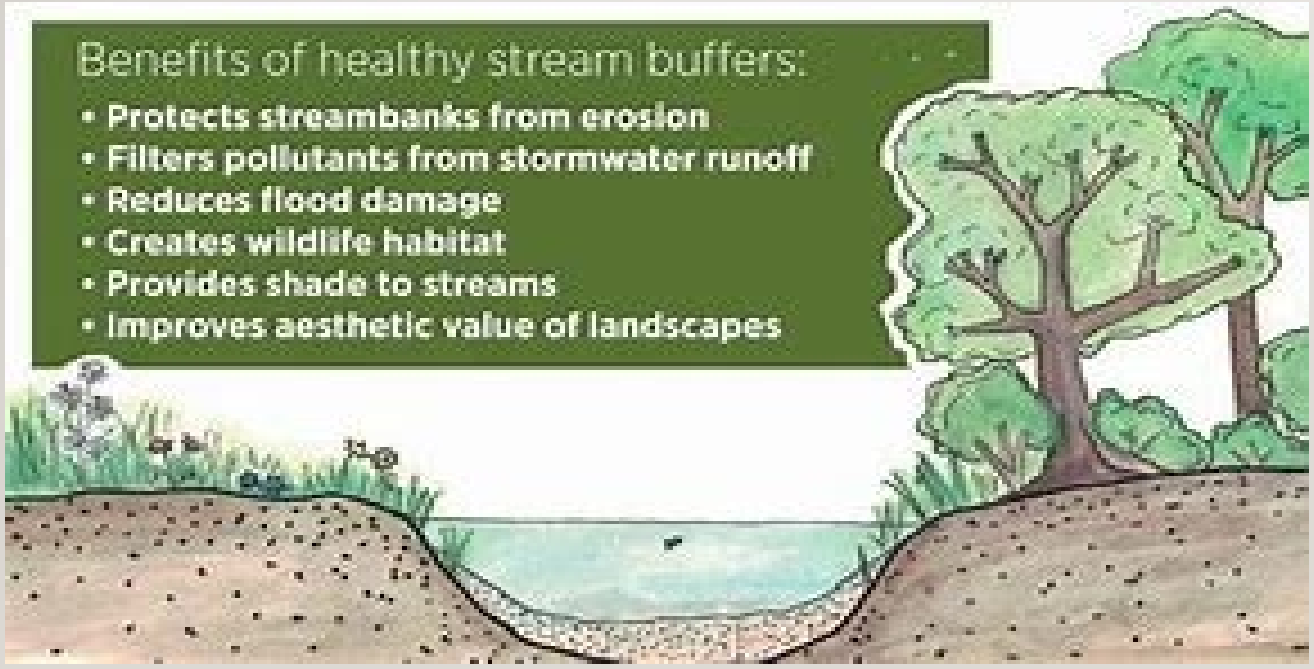
THE GOAL OF STORM WATER MANAGERS
TO KEEP OUR WATER CLEAN AND PREVENT FLOODING

- The 3 Main Principles for rain water:

- Slow—slow down the water
- Spread—let it spread out over an area
- Soak—let it soak into the ground

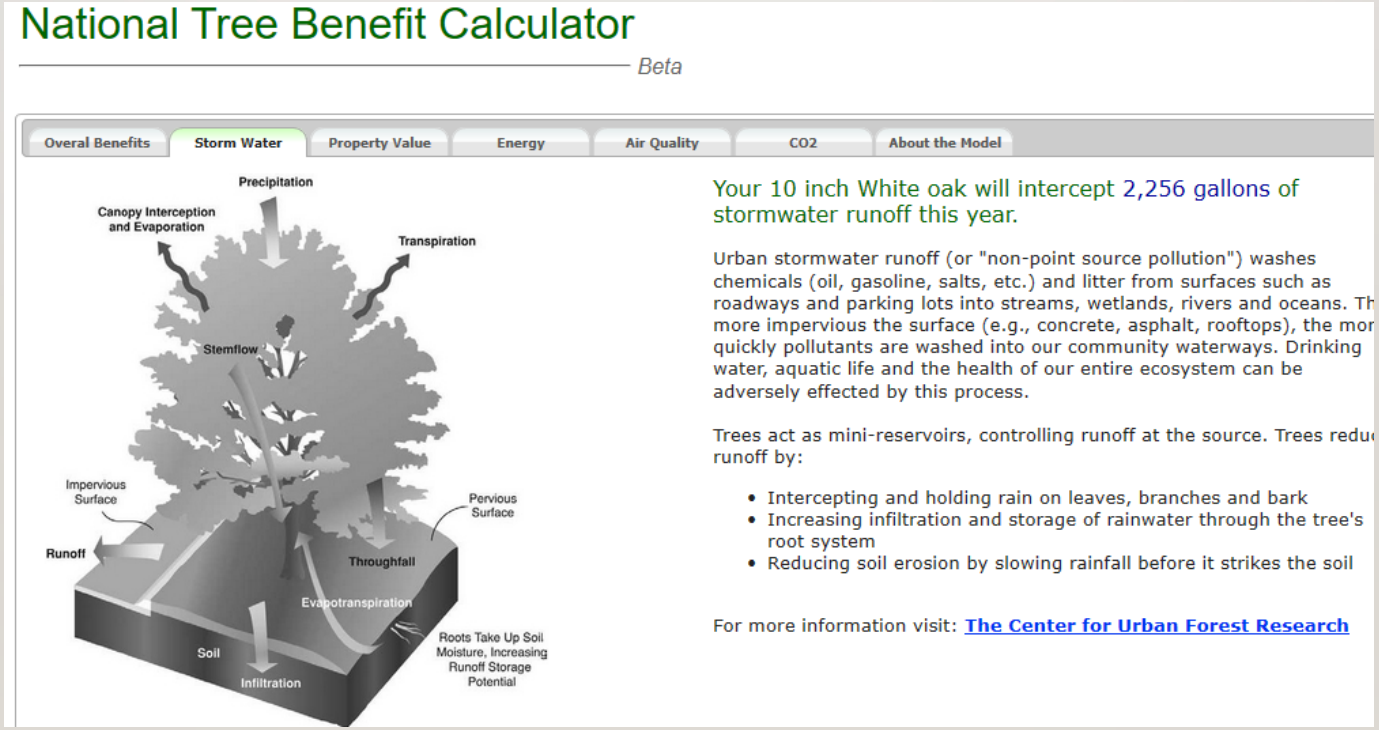
TREES AND ALL PLANTS HELP CLEAN WATER AND PREVENT FLOODING

- Riparian Zone (also called a Riparian Buffer, Riparian Area, or a Buffer Zone)



NATIONAL TREE BENEFITS CALCULATOR TOOL FOR STORMWATER

NATIONAL TREE BENEFITS WEBSITE, CASEY TREES AND DAVEY, 2020



THE WATER CYCLE
LET'S REVIEW!

- https://www.usgs.gov/media/images/water-cycle-schools-and-kids

THINK AND DRAW

- You need paper and a pencil to think and draw—these questions may help you think first:
- How do the water cycle and trees connect?
- How do trees clean our water?
- Now, please draw a diagram to show YOUR understanding of the water cycle and trees

THINK AND DRAW #2

- Draw a diagram or picture to show your understanding of the 3 Main Principles of Storm Water Management:
- Slow
- Spread
- Soak

A PLAN FOR FLAT CREEK
ACTIVITY #2

- You get to be a Stormwater Manager! What are your ideas for the town of Oakville and Flat Creek?

HERE IS YOUR STORMWATER ASSIGNMENT

- Oakville is a town that has a creek running through it called Flat Creek.
- Oakville is expanding and gaining more town residents, so new businesses and buildings are being considered.
- Where are the best places for these new businesses and buildings around Flat Creek, considering the Stormwater principles you have already learned?

THE GOAL OF STORM WATER MANAGERS
TO KEEP OUR WATER CLEAN AND PREVENT FLOODING

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