STORM WATER ...

WHO CARES?!??

Why do

need to care about storm water?

First, a little **background** information ...



YOUR STREET CONNECTS TO LAKES & RIVERS

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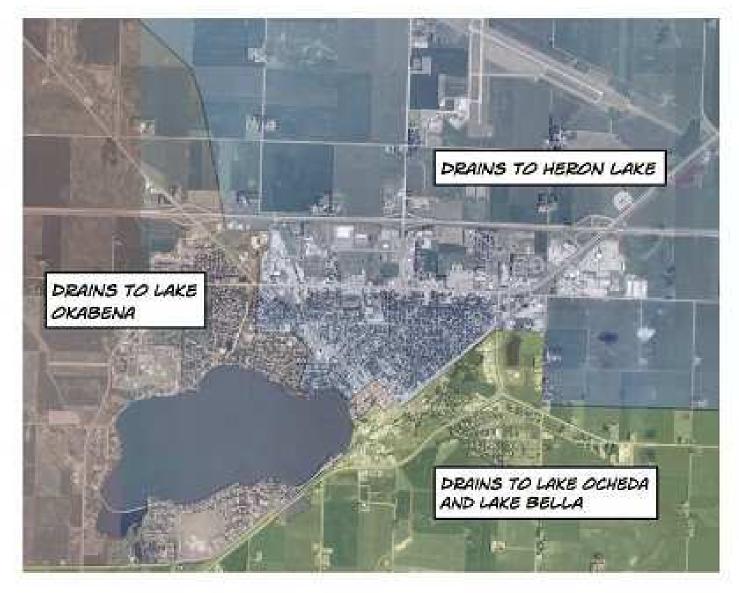
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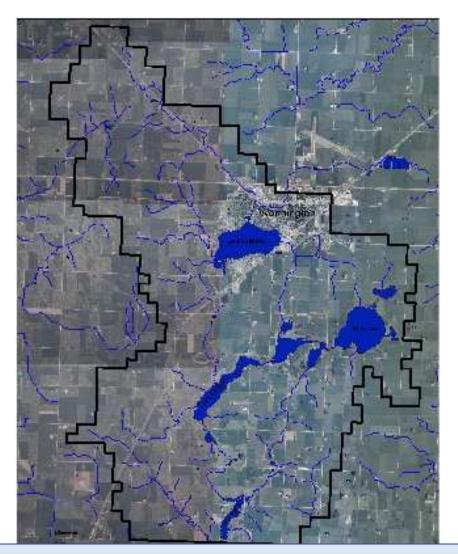
Water leaving Worthington drains to **four different lakes**



Lake Okabena, Lake Ocheda, and Lake Bella are in the **Okabena-Ocheda Watershed District**.

Heron Lake is in the **Heron Lake Watershed District**.

Watersheds are areas of land where all of the water runs to the lowest spot, which is usually the lake.



Okabena – Ocheda Watershed

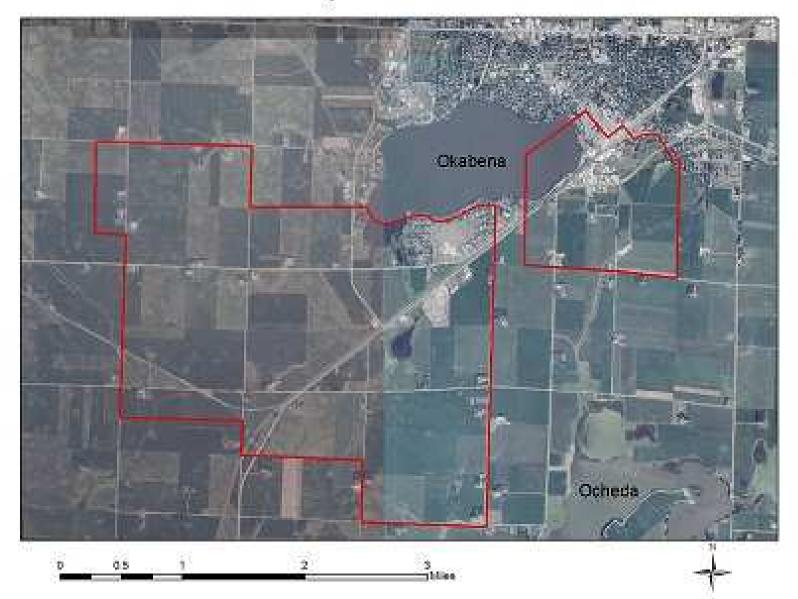
Okabena-Ocheda watershed = 71 square miles

71 square miles = 45,440 acres

All of the water eventually drains to Lake Bella, 180 acres in size.

Lake Bella is the basin for an area over **252** times its size

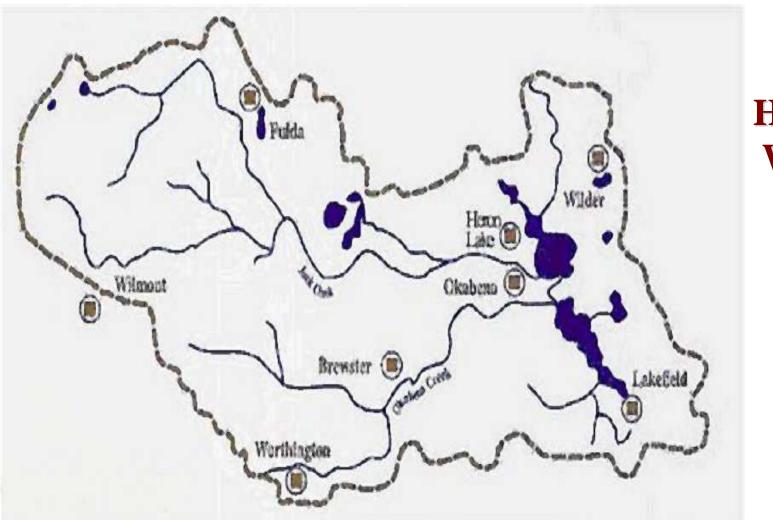
Urban runoff in the Okabena-Ocheda Watershed District can influence the water quality of the well recharge areas for **Worthington's drinking water**.



Malcolm and Worthington South Wellhead Protection Areas

Lake Bella Wellhead Protection Area





Heron Lake Watershed

Heron Lake watershed = 472 square miles

472 square miles = 302,080 acres

Heron Lake = 2,845 acres

Heron Lake is the basin for an area over 100 times its size

Heron Lake is on the **EPA Impaired Waters list** for having excess nutrients, which means there's too much phosphorus in the lake. This is a direct result of runoff throughout the watershed.

According to the Clean Water Act, efforts must be undertaken to **remove the ake** from the list and this is done, in part, through **proper** storm water management.

SO WHAT?

What does all of this

have to do with me?

Urban storm water contributes to flooding outside of Worthington. When the water leaves Worthington, it can have a negative effect on the streams and lakes you care about. Every home has storm water runoff, which means **everyone has an impact** on our lakes and streams. Town or country,

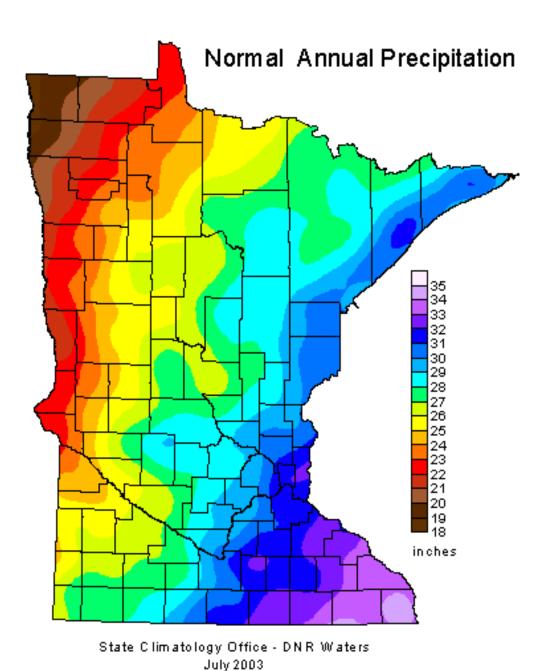
Urban or rural -

Doesn't matter!

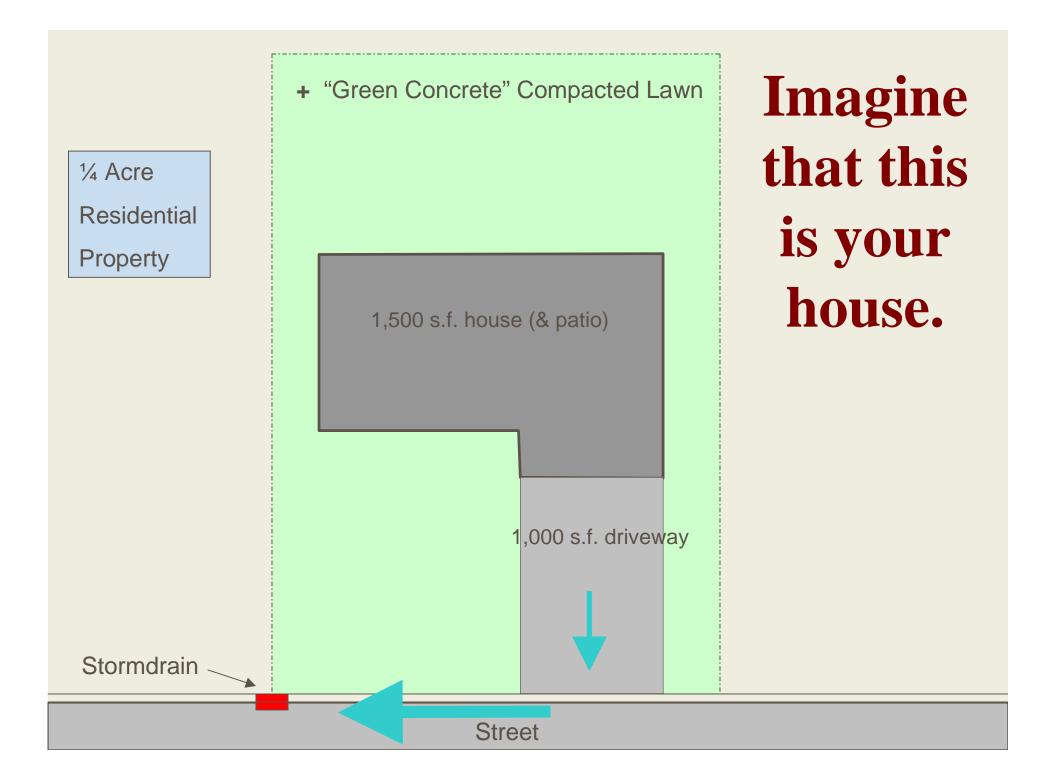
We're all involved!

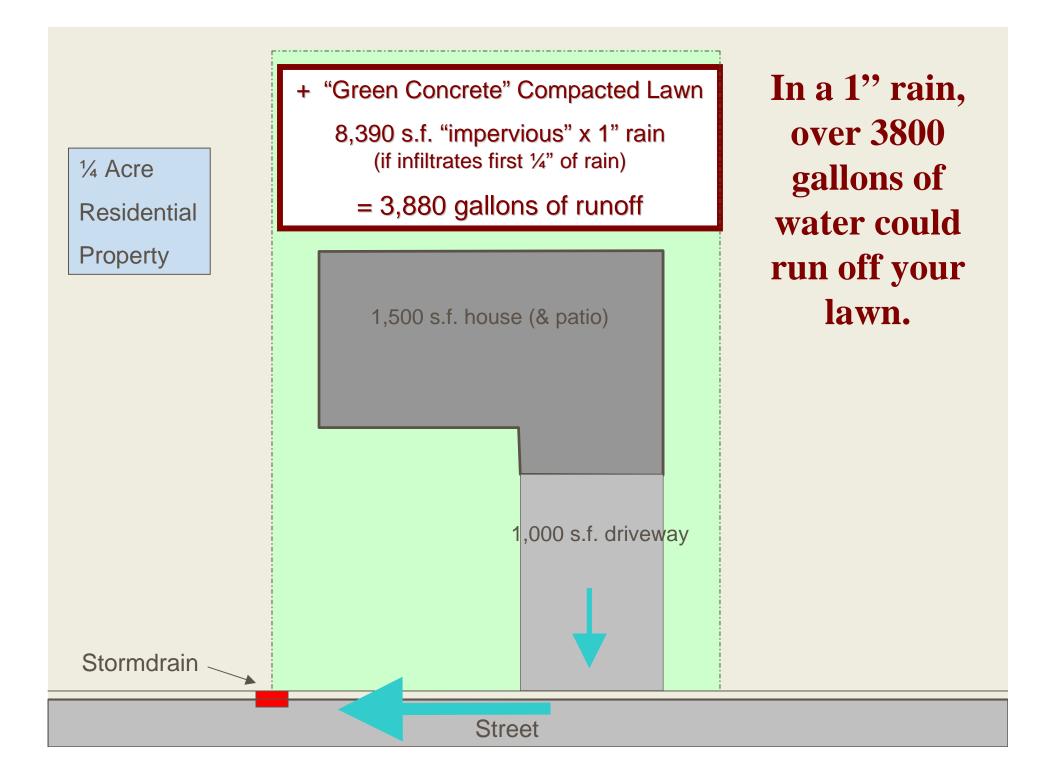
All of us should try to **hold water back when we can**, or at least slow down what runs off our yards.

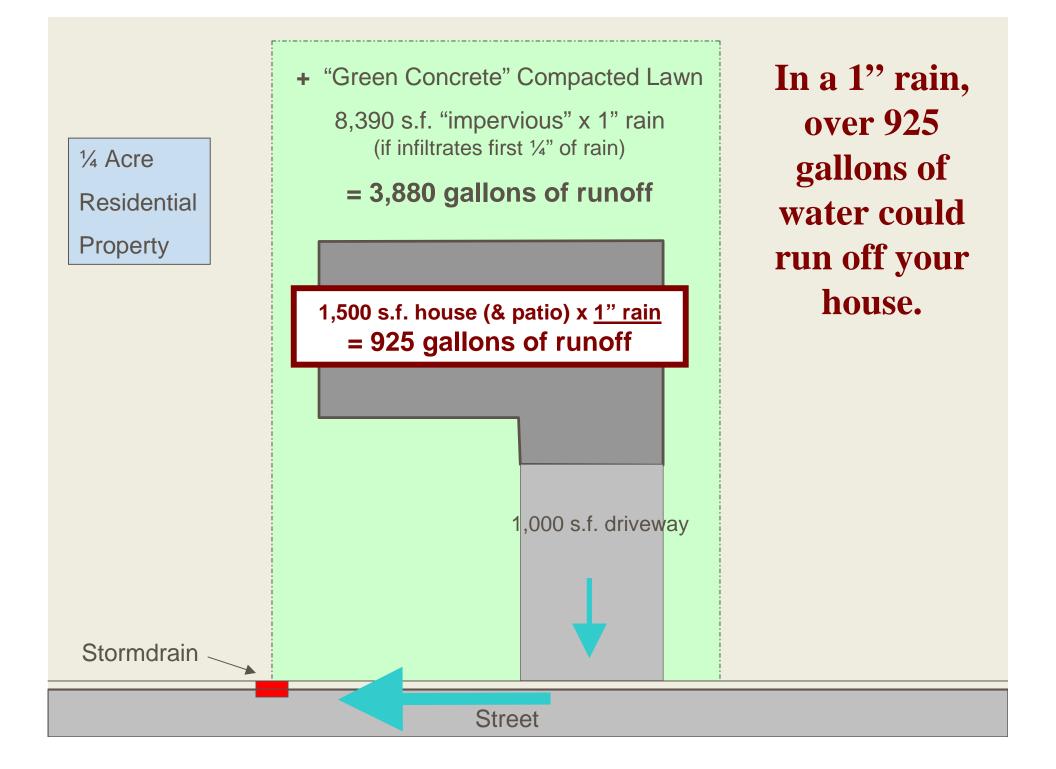
FOOD FOR THOUGHT ...

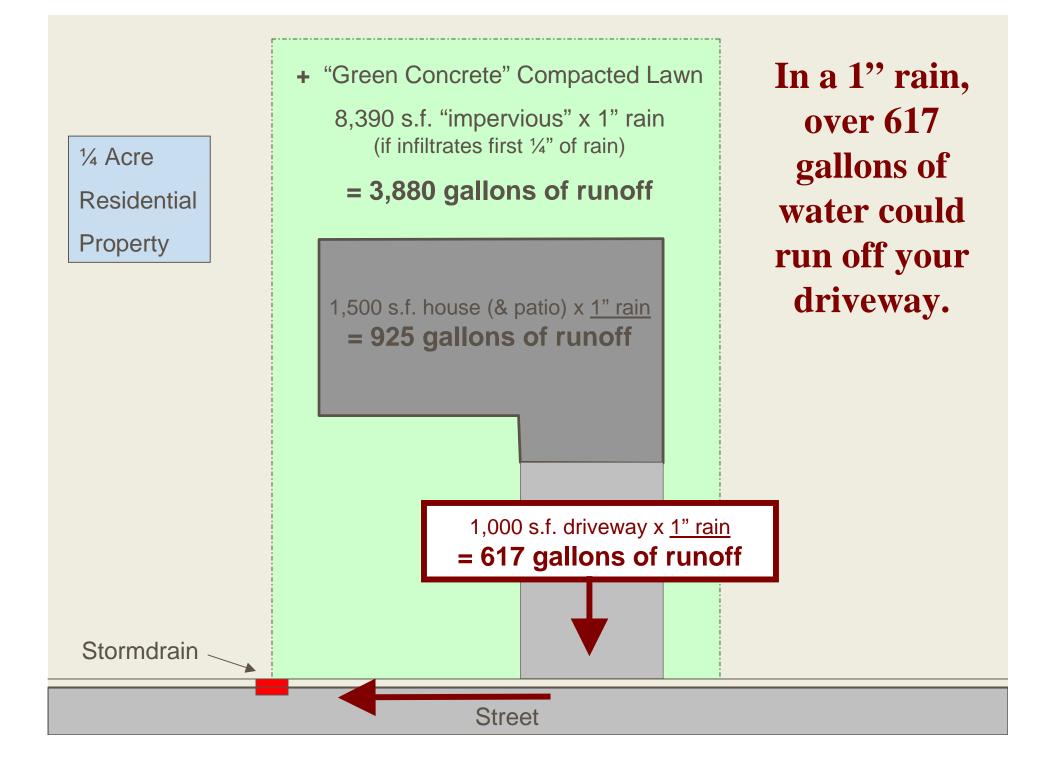


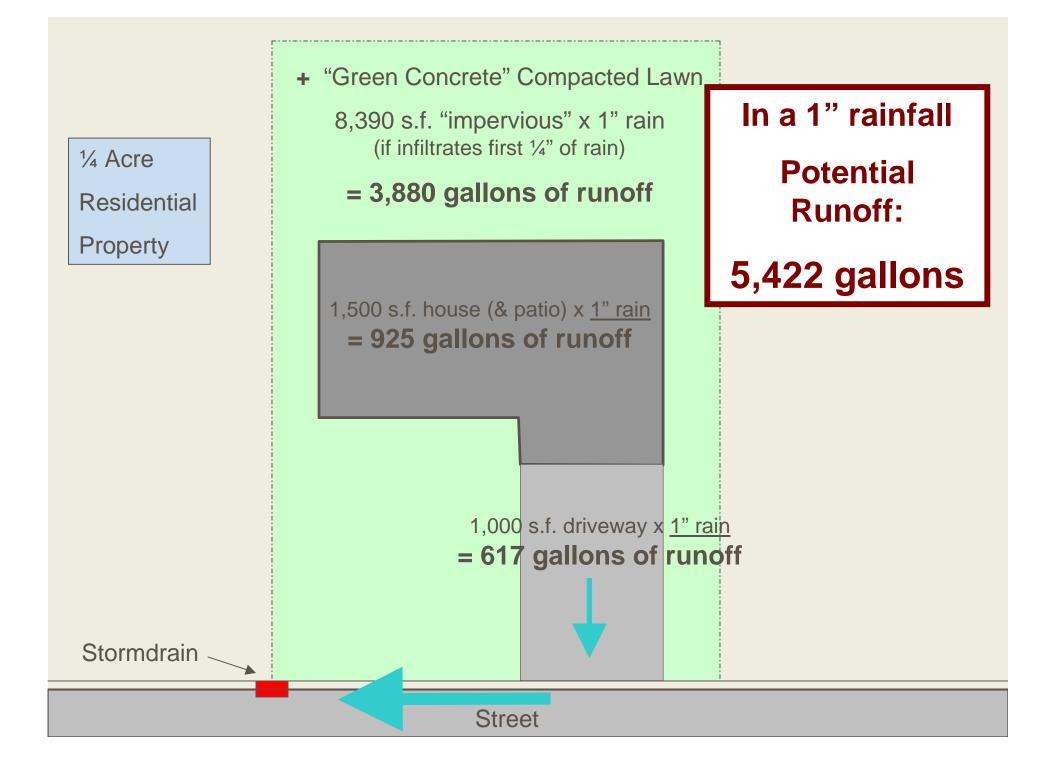
Worthington averages **28 inches** of rain each year.

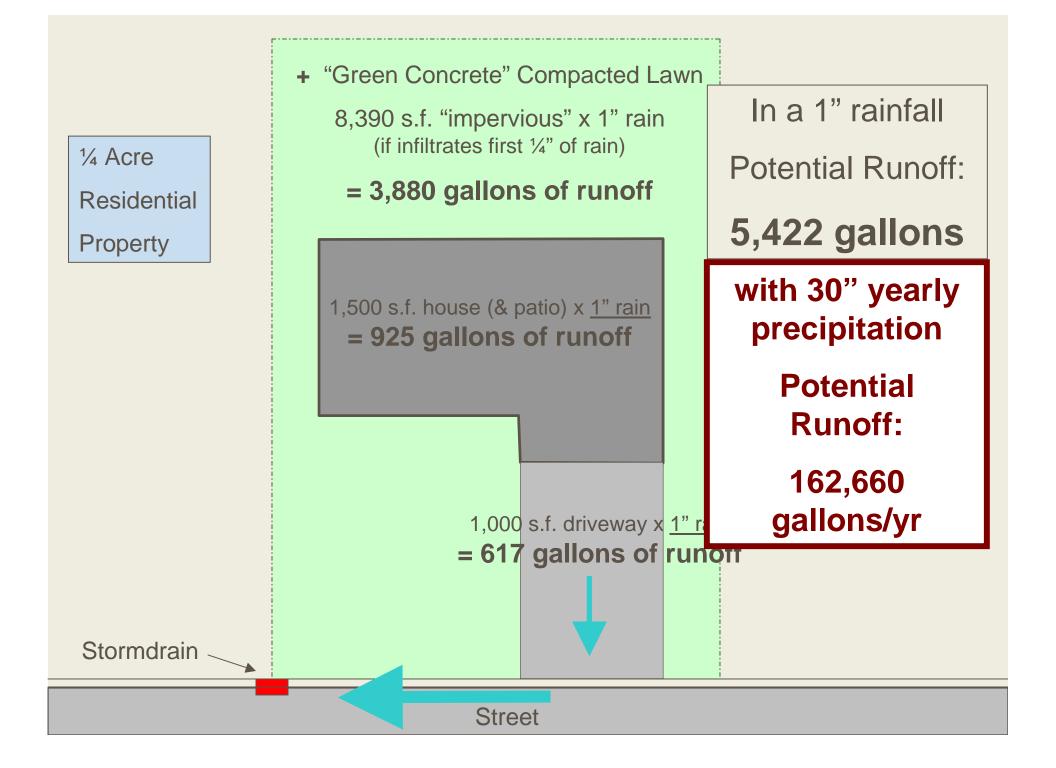


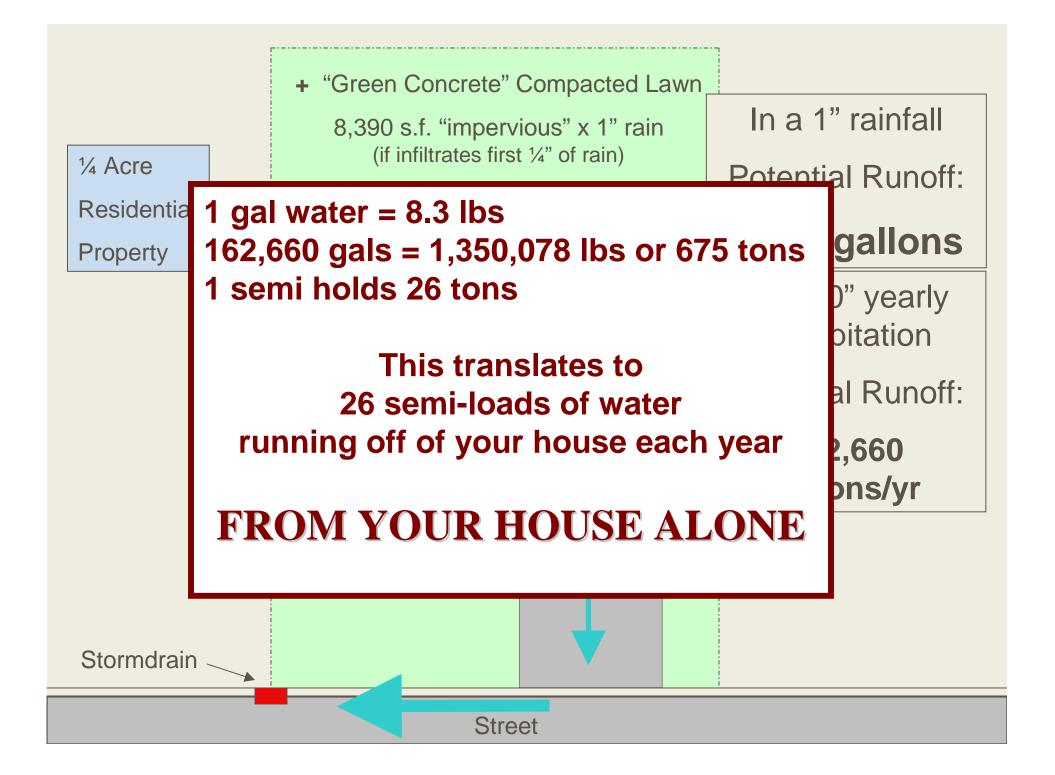














Our streets and driveways act as **runways** for the rain

Anything that's not green = impervious surface (runways)

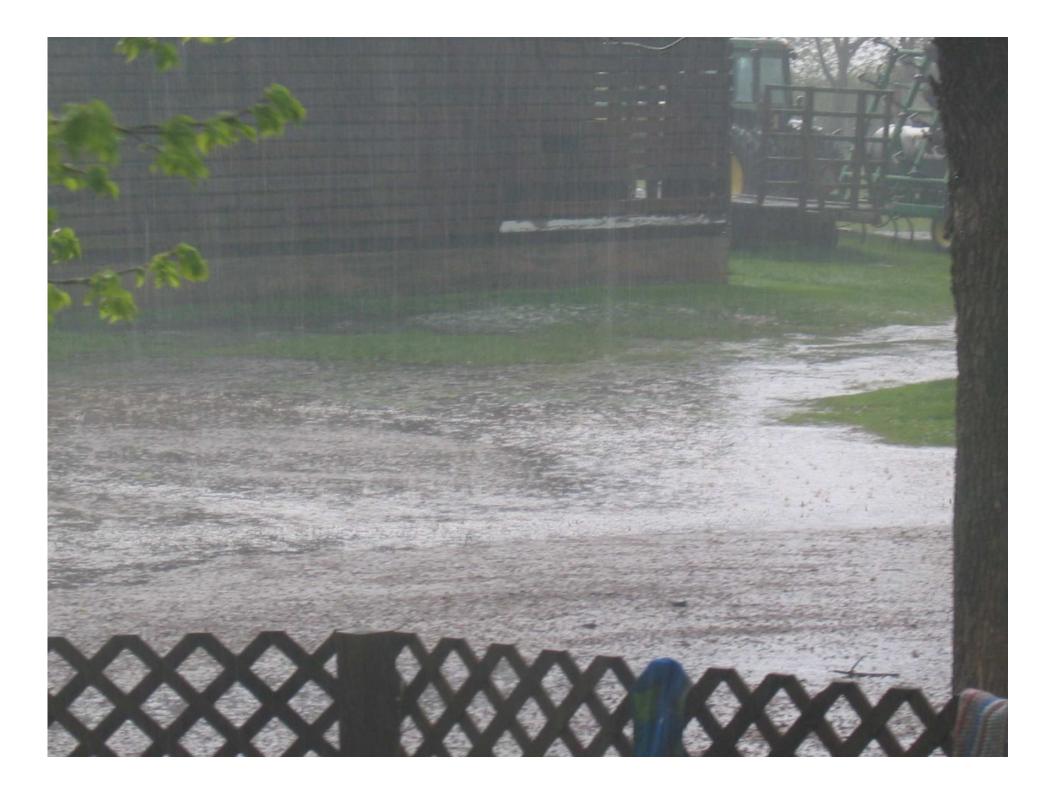
Where can the rain soak in or be slowed down?



- The heavy, fast rain events are the worst.
- We need to **plan ahead** for those events.
- What happens if we don't?

We have problems with **flooding** in town as well as in the country ...





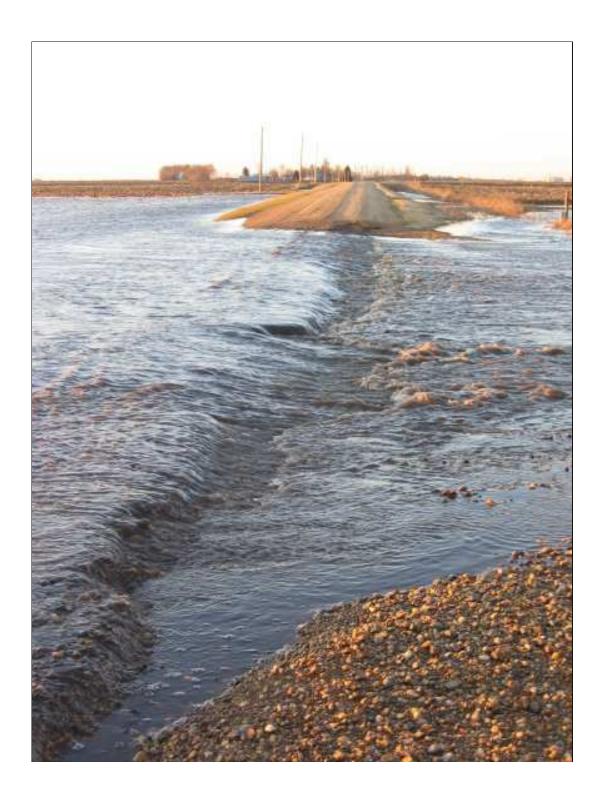








Across the road



The road in between gets washed away ...



... and all the new gravel ends up in the ditch.

Everything that's picked up by the flood waters **gets carried downstream** and is going to end up in our lakes.

Flooding causes urban and rural erosion problems ...

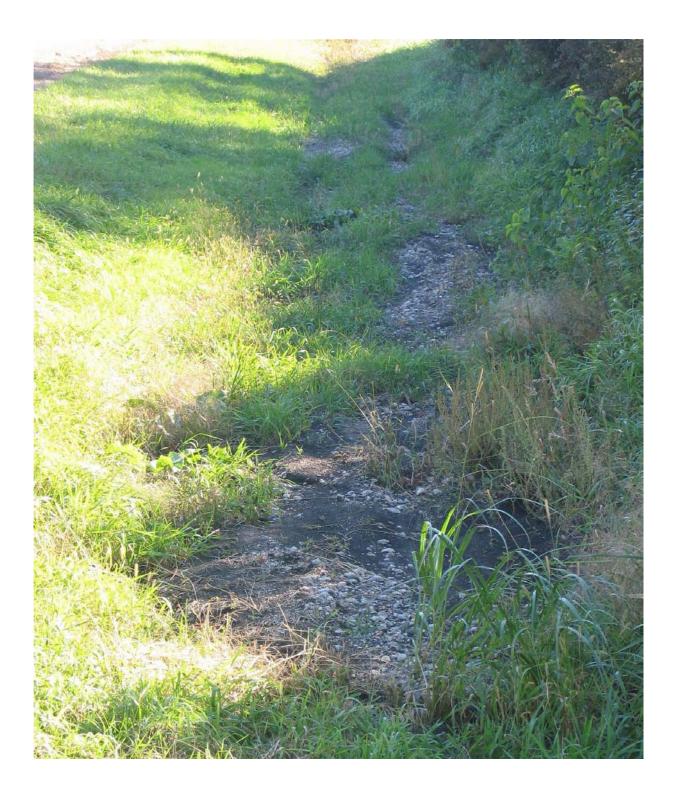


Worthington Boat Landing





What gets washed away here ...



ends up here ...



and here. Who pays to clean it all out again?

The dirt (sediment) carries **phosphorus,**

which is also found in fertilizers and on grass clippings.

What does a little over-fertilizing matter?



They get washed into the storm drains and into our lakes ...

One pound of phosphorus = 500 pounds of algae



How about oil spills? What does a little oil matter?

One quart of motor oil can contaminate 250,000 gallons of water

We're dumping a lot of stuff in our lakes.

Increased amounts of runoff with sediment, nutrients and pollutants can disrupt natural processes

We're over-fertilizing our lakes and we're wasting our money.

Remember what it's all about ...



YOUR STREET CONNECTS TO LAKES & RIVERS

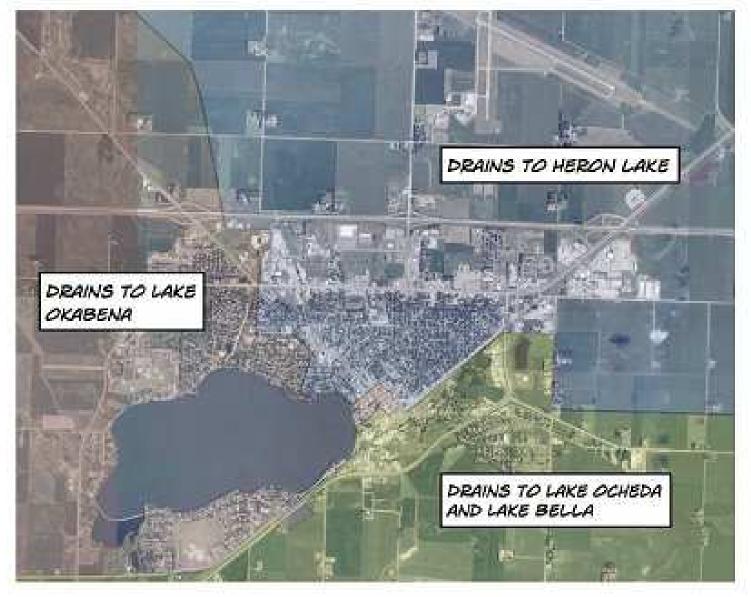
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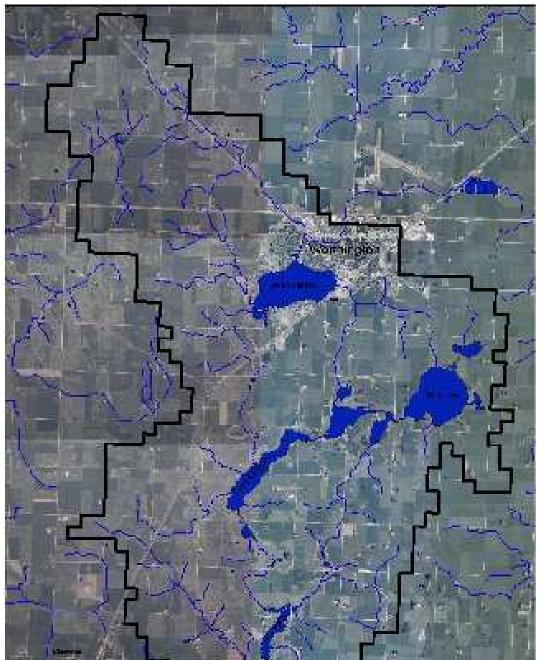
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LAKE

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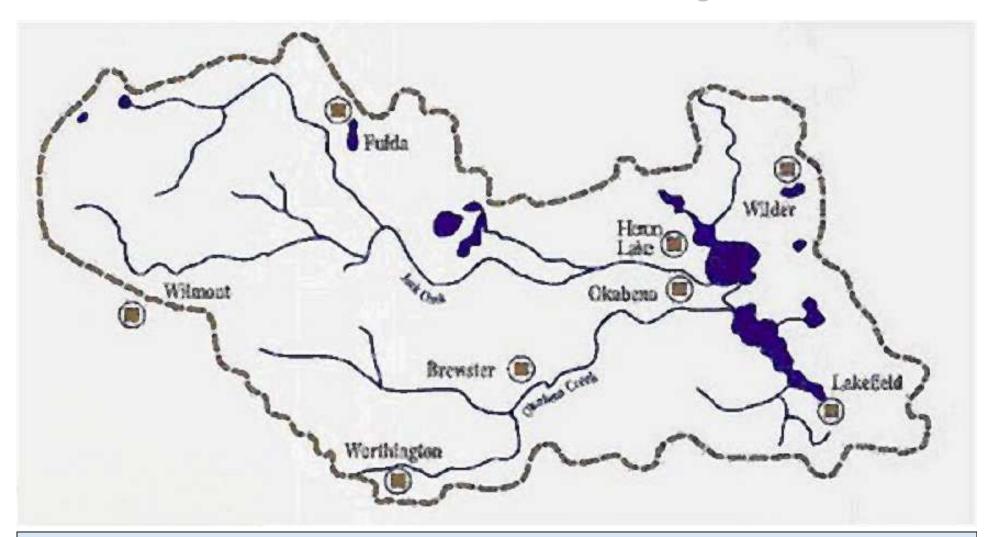




Connectivity

Lake Bella is the basin for an area over **252** times its size

Connectivity



Heron Lake is the catch basin for an area over 100 times its size

What can we do????

Stop the problem

before

it becomes a problem

Consider the effect of every household doing SOMETHING to slow down the water running off of their property.

You know the **3 Rs of Recycling -**

Reduce

Reuse

Recycle

It's the same for water

Reduce when you can, Reuse when you can, and Recycle when you can.

Here's some ideas ...

Raise the height on your lawn mower to 3 inches – the grass acts as a filter for debris and sediment





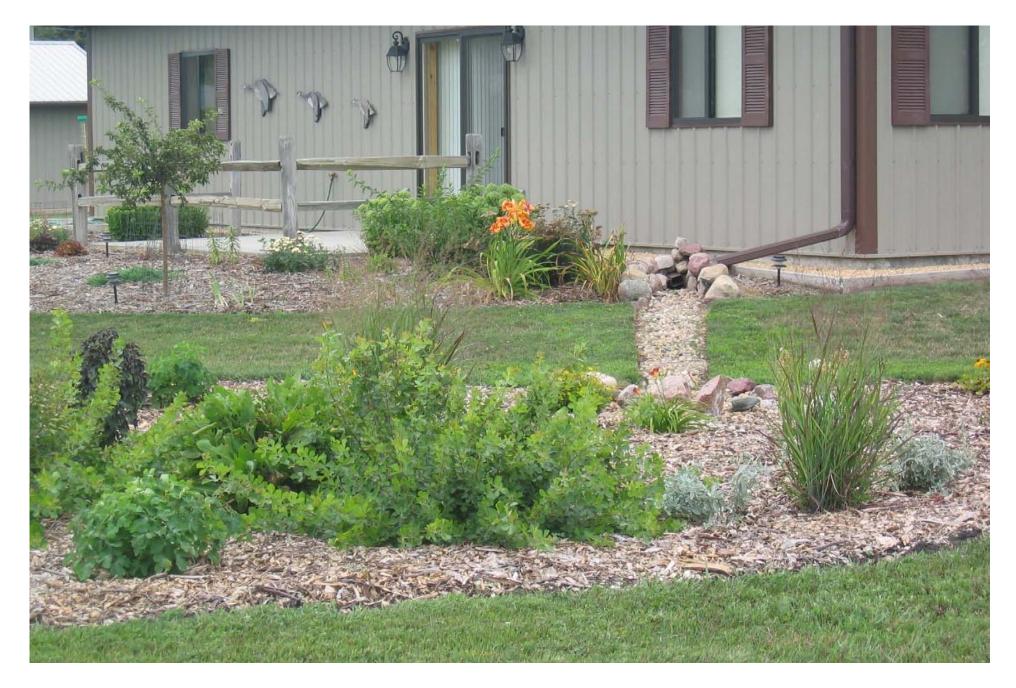
Use rain barrels (or 5 gallon buckets!)

for water conservation and recycling to water your plants

Rain Gardens (Capturing rain water and storm water)

Just like a regular landscape planting, but designed primarily to absorb rain water

Concept - Gregg Thompson, Illustration - Taina Litwak, Animation - Ron Struss



Rain garden at the Heron Lake Gun Club



Heron Lake residence

Good use of slope to run water into the garden, which is then elevated on the other side to hold the water.



These gardens will stop some of the debris from going into the lake.



Terraced gardens in Lakefield





Plantings and a lake log to control erosion on a steep hillside in Fulda,

combined with porous pavers and natural vegetation left along the lake will filter runoff from large rain events.





A grate on a boat ramp will prevent debris from entering Fulda Lake



Keep the leaves out of the street, and run your sump pump away from your house but through your lawn, rather than directly into the street.

Reduce, reuse, and recycle storm water whenever possible. We can't stop it all, but we can do what we can. All of us together can make a difference and keep our lakes clean and enjoyable.

Let's start NOW!

IF YOU HAVE GENERAL QUESTIONS OR TO REPORT A STORM WATER PROBLEM,

PLEASE CONTACT ONE OF THE FOLLOWING PEOPLE:

Dwayne Haffield, City Engineer City of Worthington 507-372-8640 d.haffield@ci.worthington.mn.us

Dan Livdahl, District Administrator Okabena-Ocheda Watershed District 507-372-8228 dan.livdahl@okabenaochedawd.org

> Jan Voit, District Administrator Heron Lake Watershed District 507-793-2462 hlwd@roundlk.net