## **Building resiliency in** Iowa's watersheds.

Recent severe flooding events and serious water pollution are a call for action. These issues are tied to oto: ISWEP how land is developed and managed in both urban and rural areas. Changes in climate and precipitation patterns will continue to compound local issues. The result is more frequent and larger rainfall events that will continue to cause erosion and flooding.

Local and statewide efforts are underway to address these

concerns. Watershed Management Authorities (WMAs) have been formed throughout lowa and bring stakeholders from across jurisdictions together to create and implement plans to address watershed issues. Comprehensive watershed plans provide the guidance needed to

make effective decisions when implementing conservation practices in both rural and urban areas. Plans may also recommend policy changes such as city and county ordinances that require a comprehensive approach to stormwater management that addresses water quality and flooding.

# It starts at home and on the farm.

In urban residential areas there are practices that homeowners can use in their yards to capture and soak up more rainfall. Some of these include rain gardens, native plant gardens, permeable pavers, impervious surface reduction and improving soil health in yards using soil quality restoration. More information on these Rainscaping practices can be found at IowaStormwater.org.

> Farmers have been using practices on their farm fields for decades and continue to expand their implementation. Some of these practices include, no-till farming, grassed waterways, terraces, and vegetated buffers along streams. More

> > recently used practices

include saturated buffers,



bioreactors, cover crops and prairie strips. Wetlands are being reintroduced into the agricultural landscape as well.





# Vatersheds Need Our Protection



Everyone lives in a watershed. A watershed is the area of land that drains, or "sheds" rainwater to a stream, river, or lake. Watersheds can be as small as an area that discharges to a grassed waterway on a farm to as large as an entire region like the Mississippi River Basin. Watersheds do not follow traditional boundaries, like cities or counties. Thinking on a watershed scale enables us to understand that water issues are solved across jurisdictions. Protecting and improving our water resources is vital to ensuring lowa's future generations can enjoy the benefits of clean streams and lakes and minimized flood risks.

Iowa is bordered by two great rivers, the Mississippi and the Missouri. Rivers are part of Iowa's heritage, and they deserve protection.

#### All land sheds to water

Photo: Emily Mart

### From tallgrass prairie and wetlands, to row crops and subdivisions

When it rained on the tallgrass prairies that once covered Iowa, most of the rain soaked into the soil creating little runoff. Streams were fed by cool, clean groundwater. Soil had high organic matter content and pore space. This acted as a sponge to hold water and make it readily available to plants. Wetlands provided natural buffers, purified and stored water, and provided wildlife habitat.

Now, the majority of the natural landscape in Iowa has been converted to row crop agriculture. Elsewhere, cities have created hundreds of square miles of impervious surfaces through streets, driveways, and heavily compacted lawns. These changes have caused water quality issues in our streams and lakes. Flooding in these areas causes devastating damage to crops, homes, and other structures.



#### Flooding and stormwater pollution are urban and rural issues.

#### **Urban Concerns**

When it rains water can't soak into impervious surfaces such as buildings, streets, sidewalks and parking lots. The stormwater runoff generated from these surfaces travels over landscapes and into storm sewers that are connected to an underground pipe system. The concern with impervious surfaces and stormwater is the amount of runoff generated during a rainfall event and speed at which it reaches local streams. This can cause local flash flooding and streambank and

channel instability.

As stormwater moves across urban surfaces it collects pollutants. Some of these include vehicle fluids, pet waste, and excess fertilizers. Unlike wastewater, stormwater is not treated and is released directly to local waterways.



Turf grass makes up a significant amount of land in residential areas. While green grass may appear natural, subsurface soils are typically heavily compacted and lacking in organic matter. This means more water and fertilizer are needed to sustain the turf. Urban soils are increasingly unable to soak up rainfall, resulting in more stormwater runoff.

#### **Agricultural Concerns**

Agricultural production has created a heavily altered landscape. Similar to urban development, drainage management in rural areas seeks to move water off the landscape quickly. Extensive underground drainage systems effectively drain the soil. However, they contribute to increases in stream discharge and peak flows that causes localized flooding.

Watershed Management Authorities work across jurisdictions to address water quality and flooding problems together.

Conventional tilling methods and monocropping have led to increased erosion and decrease in soil health and increased need for fertilizers.

Stormwater runoff generated from agricultural fields carries eroded soil, nutrients, and bacteria to waterbodies via surface conveyance or subsurface drainage. Not all of these pollutants will be filtered through soil or vegetation. The removal of natural wetlands has disrupted natural filtration and water storage processes.

**Protecting our Watersheds** 

Progress is being made to address both urban

and agricultural rainfall runoff issues. Urban

and rural practices are being used across the

state to mitigate water pollution, streambank



Learn More: www.lowaStormwater.org/Stormwater-Runoff/Watersheds

degradation, and flash flooding.

In urban areas, green

infrastructure practices like

bioretention cells, bioswales,

permeable pavers, and constructed

wetlands are being utilized on municipal,

commercial, and residential properties. Many farmers have taken the initative to install grassed waterways, stream buffers, cover crops, and other practices. Streambank and channel restoration projects are occurring across the state.

> lowa's water issues are our issues, and both urban and rural residents need to be involved. The cumulative affect of individual actions can create tangible improvements in local water quality and flood minimization. Reach out to your local municipality or Soil and Water Conservation District (SWCD) for more information. And encourage your friends and family to do the same!