

# Iowa Legislator's Guide to Stormwater Management

How stormwater is managed locally influences flooding, water quality, streambank stability and waterbody health. If done incorrectly stormwater can cause severe property, infrastructure, and ecological damage.

# What is Stormwater & How is it Managed in Iowa's Communities?

- As our communities grow and expand, rainfall has less undeveloped area to infiltrate into soil, and instead flows as runoff to local streams. Stormwater runoff from streets, parking lots, roof tops, and compacted soils is much faster, more polluted, and more destructive than natural groundwater seepage. It eventually drains through an underground storm sewer system directly into local waterways.
- Stormwater policy is managed locally for water quality and flood control based on local drainage and soil characteristics, and community needs. Most stormwater flows directly into local waterways without any treatment.
- Existing aging and undersized storm sewer systems present challenges to many communities. They also experience more stormwater impacts with new developments due to increasing impervious areas (pavement, rooftops, etc.). Many jurisdictions have ordinances that address local stormwater management requirements for development based directly on local infrastructure and existing conditions in their community.

## What are Stormwater Concerns?

#### Flooding

- Communities address stormwater management for flood control by requiring developers to install detention basins in both new developments and redevelopment projects.
- Basins are designed by engineers to hold back some of the rainfall and release the runoff at a rate that will minimize downstream impacts from flooding. There can be negotiations between the jurisdiction and the developer to achieve local goals in a reasonable manner.
- When there are no detention basins or they are under-sized, stormwater is discharged to local waterways too quickly risking severe streambank erosion and flooding. As a consequence of more water draining faster than before development, the 100-year flood levels get higher and the flooded areas expand. In many instances, property and structures that had not previously been subject to flooding become at risk.

#### Water Quality

• As stormwater runoff moves across the landscape it collects pollutants such as fertilizers and pesticides from lawncare, bacteria from pet waste, sediment from eroded soils, chemicals from leaky vehicles, and trash. These pollutants reach our waterways via storm sewer outlets. Stormwater treatment "practices" such as bioretention cells, detention basins, and stormwater wetlands are being used in some communities to filter out pollutants before they reach waterways.



Storm sewer sytem vs. sanitary system.



Storm sewer pipe discharge to a local stream.



Severe streambank erosion caused by excessive stormwater discharges.



Wet basin used to collect stormwater drainage from a development.



# Are There Federal And State Requirements?

Yes. There are 44 lowa cities with municipal separate storm sewer systems (MS4s) that are subject, under the Clean Water Act, to Environmental Protection Agency (EPA) regulations (the National Pollutant Discharge Elimination System, or "NPDES"). Both the lowa Department of Natural Resources (IDNR) and EPA oversee the implementation of permit requirements through regular audits, inspections, and permit renewals. How-ever, they leave it up to local jurisdictions to establish specific policies. EPA's language: "Each permitted MS4 operator must develop a written stormwater management program that describes in detail how it will comply with the NPDES permit requirements for each of the six Minimum Control Measures." Post Construction Runoff Control and Construction Site Runoff Control are two of six of the Control Measures.

**Post Construction Runoff Control requires that cities have local ordinances for development that minimize flooding and streambank erosion and includes water quality management.** Federal permit language: "An ordinance shall continue to be implemented and amended as necessary which will address the control of runoff from building activities after construction has been completed. The ordinance shall require water quality and quantity components be considered in the design of new construction and implemented when practical. The ordinance shall promote the use of storm water detention, retention, infiltration, other Best Management Practices specific to each site which address water quality and quantity issues and proper operation and maintenance of these facilities."

Construction Site Runoff Control requires cities to have ordinances to establish compliance with the requirements in IDNR's General Permit Number 2 for stormwater discharges from larger construction projects. They're required to periodically inspect and ensure compliance with those construction projects regulated under this permit. One of the construction site permit requirements is to "preserve topsoil unless infeasible" and to "minimize compaction". This general language leaves it up to local jurisdictions to establish policies for compliance.

## How are Stormwater Practices Designed?

Municipalities and consulting engineers rely on science-based design guidelines to design flood control, stream bank protection, and water quality improvement practices. The Iowa Department of Natural Resources (IDNR) has developed the **Iowa Stormwater Management Manual (ISWMM)** which is a guide for designing stormwater practices used in Iowa. The Iowa Department of Agriculture and Land Stewardship urban conservation program works with IDNR to update sections in the manual using a committee of public and private stormwater professionals.

• Additional design and construction standards are included in the **Iowa Statewide Urban Design and Specifications (SUDAS) manuals**. SUDAS includes some stormwater management and design guidance for public infrastructure. Iowa communities adopt part or all of these design guidelines in local ordinances, sometimes including supplemental specifications that are specific to each municipality.



One of numerous design guidelines for practices in the ISWMM.

#### About the Iowa Stormwater Education Partnership (ISWEP)

ISWEP is a non-profit organization that supports cities in Iowa with regulated stormwater programs. It creates educational and technical resources to support members and conducts training and certification programs to support those impacted by stormwater regulations in the state.

Our Mission: To promote stormwater best management practices through awareness, education, and training.

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