STORMWATER STRATEGIES FOR COMMUNITIES

Using the Iowa Stormwater Management Manual

Developed areas can negatively impact their surroundings without proper stormwater management. During storms, impervious surfaces such as rooftops, roadways, parking lots and compacted soils cause rainfall and accumulated pollutants to flow into storm drains without treatment. This increased stormwater runoff also damages stream channels, pollutes water resources, and causes flooding. Local governments have spent millions of dollars to upgrade infrastructure and to fix erosion and damages caused by stormwater. These costs will continue to increase as cities grow, especially without updated stormwater management techniques.

Some design standards are no longer sufficient to manage stormwater effectively or deal with the increased amounts or rates of polluted stormwater runoff flowing into local waterbodies. More can be done to protect our citizens and cities from flooding and erosion and improve the quality of our surface water. Overall, proactive design techniques for better stormwater management are more cost effective and less disruptive.

Communities of all sizes can benefit from implementing the Iowa Stormwater Management Manual (ISWMM) guidelines and its principles of stormwater management. Implementing better site design principles will help a community preserve natural drainage in open spaces, reduce flow of additional stormwater, reduce pollutants and flooding risk, and reduce impervious surfaces. This approach will manage both small and large storm events to improve water quality and reduce water quantity, protecting our natural resources and community infrastructure.

IOWA STORMWATER MANAGEMENT MANUAL

Stormwater management methodology, technical resources, design guidance, and example calculations are located in ISWMM. It also provides tools to properly size and design post-construction stormwater management practices that effectively protect communities and water quality.

The manual was released in 2009 and continues to be updated with the latest technology for urban stormwater management. It includes tested best management practices that provide real long-term benefits to cities, taxpayers and water resources.

The Iowa Department of Natural Resources (DNR) oversees the manual and it is located on the DNR website at www.iowadnr.gov/Environmental-Protection/Water-Quality/NPDES-Storm-Water/Storm-Water-Manual.

Stormwater is managed using a comprehensive design approach called the Unified Sizing Criteria. It uses measurement standards to meet flooding, health, safety and water quality goals. The Unified Sizing Criteria mimics how Iowa's original native prairie landscape and soils were able to soak in rainfall.

Managing both small and large storm events improves both water quality and reduces water quantity problems. This Criteria uses a management standard to design best management practices that meet desired treatment goals and objectives. The Unified Sizing Criteria is located in Chapter 3.01 of the manual.

The manual was written as a technical design guideline, not a standard. Jurisdictions are able to tailor ISWMM stormwater management methodology to fit their community situation and resources. Therefore, when jurisdictions choose to adopt ISWMM as a resource for enforcement, it should include language that clarifies how the manual will be interpreted and used to satisfy stormwater standards.

Before a jurisdiction adopts policies or ordinances that refer to ISWMM they should review Section (3.01-7) which is a checklist of key items to consider.

Identify which elements of the Unified Sizing Criteria are to be met.	What other documents, such as maintenance agreements, covenants, and easements, will be needed.
Determine how items categorized by the manual as “essential”, “target”, or “advisory” are viewed as a standard, by local jurisdictional requirements.	Define methods of inspection of practices during construction.
Identify thresholds for new or redevelopment projects that would initiate local stormwater management requirements.	Create policies for floodplain management or buffers along streams.
Identify local sensitive areas or watershed conditions that would exempt any aspects of the Unified Sizing Criteria or prohibit installation of certain practices.	Identify the materials to be submitted at the various plan review steps.
Identify local sensitive areas or watershed conditions that requires going beyond ISWMM guidelines.	Consider developing a local Stormwater Technical Document or policies that clarify how the local jurisdiction is interpreting or enforcing elements.
Identify any restrictions to best management practice application.	Encourage or require use of a Better Site Design process.
Define any studies or plans that are required to be submitted.	Refer to the Iowa Statewide Urban Design and Specifications (SUDAS) and Iowa River Restoration Toolbox for guidance on items not covered in ISWMM.

RESOURCES AND TOOLS

There are a number of additional resources and design tools included with ISWMM to assist jurisdictions and consultants with the design and review of stormwater management plans. Tools are continually developed to aid in the design, review and implementation of better stormwater management.

STORMWATER MANAGEMENT PLAN TEMPLATE

A template for stormwater management plans

ENGINEERING TECHNICAL DOCUMENT

This "supplemental design standard" is a template which can be tailored by a jurisdiction. It gives brief summaries of key aspects of the manual and provides specific guidance on design methods or assumptions for their community.

NATURAL RESOURCES INVENTORY EXAMPLE MAPS

Examples of available natural resource information used as part of the better site design process and stormwater management plan development.

PRACTICE DESIGN CHECKLISTS

Spreadsheets to assist in the design process. Design information entered into checklists will calculate sizing and provide guidance on the design and review of many practices (bioretention cells, permeable pavers, stormwater wetlands, wet ponds, dry detention, extended dry detention).

SUPPORTING DOCUMENTATION CHECKLISTS

Spreadsheet that identifies supporting documents to submit with design plan elements and details at various review stages. (wet ponds/stormwater wetlands and pavers)

SPECIFICATIONS

Practice construction specifications that complement the design and provide additional details.

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