

The Application of Innovative Stormwater Management Approaches to develop the Calumet-Sag Detailed Watershed Plan

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Abstract

The Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) is nearly complete with the development of a Detailed Watershed Plan (DWP) for the Calumet-Sag Watershed. The 151 square-mile Calumet-Sag watershed consists of areas tributary to the Cal-Sag Channel in southern Cook County, and includes 27 municipalities as well as some unincorporated areas. The primary purpose of the DWP is to document the evaluation of stormwater problems and development of improvement projects addressing flooding and erosion problems. Each recommended improvement included in the DWP is summarized with information on Benefit to Cost Ratio, Net Benefits, Total Conceptual Project Cost and Number of Structures Protected from damages.

Major tasks completed as a part of DWP development include a collection and evaluation of data, development and calibration of Hydrologic and Hydraulic (H&H) models, development and evaluation of alternative improvements and documentation required for the DWP. Since the Calumet-Sag DWP was one of the first completed by the MWRDGC, many complex issues that will impact subsequent watershed planning efforts were addressed. The MWRDGC is near completion of two additional DWPs and in the early phases of development of three remaining DWPs that will utilize approaches defined as a part of the Calumet-Sag DWP development.

The MWRDGC made extensive use of advanced Geographic Information Systems (GIS) and H&H modeling applications to produce and communicate the best possible information. GIS software applications were utilized to support the development, management and display of H&H model data. H&H models were developed utilizing the US Army Corps of Engineers HEC modeling application and hydraulic routing was performed with the fully dynamic unsteady flow routing option. Along with these tools, the MWRDGC also developed a web based application that will be utilized by all watershed planning consultants to define damages and develop alternative improvement projects.