Preface

Many communities nationwide have adopted urban stormwater quality requirements, resulting in the need to implement stormwater best management practices (BMPs) under many different physical and climatic conditions. The engineering community has expressed concern over how these structures perform in cold or snowy climates. This manual addresses some of the unique challenges in cold climates and makes design recommendations for BMPs to make them more effective in cold regions.

Chapter 1 is the background of the report, and gives general guidance. First, it describes the telephone and write-in surveys that provided much of the background information for the manual. It also includes maps that can be used to identify cold and snowy climate regions. Next, it outlines the specific challenges of cold climates, and how they can affect BMP performance. Finally, a matrix of the applicability of BMPs to cold climates is presented, and the reader is referred to other chapters for specific design recommendations.

Chapter 2 presents modified sizing criteria for cold climates. These criteria address both water quality and water quantity sizing. The physical basis behind these modifications is the changes in the hydrologic cycle and pollutant loadings that occur in cold climates. Specifically, much of the annual runoff occurs during a short period when the snowpack melts and rain-on-snow events can produce large runoff volumes.

Chapters 3 through 7 provide specific cold climate design criteria five basic BMP groups. These include ponds, wetlands, infiltration systems, filtering systems and open channel systems. For each BMP group, specific types of BMPs within the group are described. "Base" criteria, which apply to both moderate and cold climates are presented. The cold climate modifications for each BMP follow. BMPs can be modified in up to six categories, including: feasibility, conveyance, pretreatment, treatment, maintenance and landscaping (See Table 1).

TABLE 1 CATEGORIES FOR BMP MODIFICATION

Category	Description
Feasibility	Redefinition of when BMPs are recommended, based on cold climate challenges.
Conveyance	Alternate inlet and outlet structures and outfalls.
Pretreatment	Alternatives for treating runoff before it reaches the BMP structure.
Treatment	Modifications to the internal structure (permanent pool or filter).
Maintenance	Modifications to routine maintenance or aspects of permanent BMP design focused on facilitating long-term maintenance.
Landscaping	Landscape alternatives for BMPs and the areas surrounding them.

Chapter 8 explores alternatives for Pollution Prevention in cold climates. This chapter primarily focuses on ways to reduce pollutant loading from deicers. These include sand application, road deicers and airport deicers. This discussion is relatively brief, as the manual's primary focus is the modification of BMPs.