

## Section 5

# Summary and Conclusions

Stormwater problems in the Little Calumet River Watershed, whether identified by stakeholders or identified by modeling of intercommunity waterways, indicate a need for regional stormwater management solutions throughout the Little Calumet River Watershed. The Little Calumet River Detailed Watershed Plan (DWP) was developed in coordination with the Little Calumet River Watershed Planning Council (WPC), with a focus on integrating community knowledge of stormwater problems and ideas for feasible solutions into the District's regional stormwater plan. All stormwater problem data received from stakeholders was recorded in a database, and classified as local or regional according to the criteria defined in Section 1.

Hydrologic and hydraulic models were developed to estimate flow and stage along regional waterways and assess the frequency and depth of flooding problems for a range of modeled recurrence intervals. Inundation mapping was developed for the 100-year modeled storm event, identifying areas estimated to be at risk of flooding. Modeled water depths and inundation mapping were used to help estimate damages due to flooding within each tributary.

Stormwater improvements were developed to address regional problems throughout the watershed. Appropriate tributary-specific technologies were screened considering their applicability for addressing problem areas, constructability in the area required, and regulatory feasibility. H&H models were modified to represent possible future conditions. Damage estimates for proposed alternatives were performed to evaluate an alternative's effectiveness at reducing regional stormwater damages. The difference in damages between existing and alternative conditions was quantified as an alternative's benefit. In addition to numeric benefits, several other criteria were noted for each alternative, such as the number of structures protected, water-quality benefit, and wetland/riparian areas affected. Conceptual level cost estimates were developed to estimate the construction and maintenance cost of proposed alternatives over a 50-year period. Estimated benefits were divided by conceptual costs to develop B/C ratios.

The distribution of benefits resulting from the recommended alternatives is relatively uneven throughout the Little Calumet River Watershed due to the wide range and severity of flooding problems among communities and individual tributaries. Predicted benefits are greatest for Cal-Union Drainage Ditch, and Midlothian Creek subwatersheds due to relatively large numbers of impacted structures (hundreds) as well as multiple roadways.

Stormwater problems, whether identified by stakeholders or identified by modeling of intercommunity waterways, indicate a need for regional stormwater management solutions throughout the Little Calumet River Watershed. The alternatives recommended within this plan substantially address damages within the predicted 100-year inundation areas. For the majority of alternatives, flood stages are predicted

to address damages. Some residual flooding areas remain, for which floodproofing or acquisition may be considered. The maintenance activities, stream bank stabilization, conveyance improvement, and flood storage alternatives recommended in this plan will provide benefits to the Little Calumet River Watershed as the District implements its regional stormwater plan.