

# 4. Watershed Action Plan

---

This section summarizes the DWP recommendations. The recommendations and supporting information will be considered by the District's Board of Commissioners in their prioritization of a countywide Stormwater CIP. The recommendations within the DWP consist of maintenance activities (Section 4.1) and recommended capital improvements (Section 4.2).

## 4.1 Watershed Maintenance Activities

Review of reported stormwater problem data indicated that certain types of maintenance activities would be helpful in preventing these stormwater problems. The District, through its maintenance activities, has been actively removing blockages such as tree limbs and woody debris from channels throughout Cook County. Local communities have reported benefits from these maintenance activities. It is recommended that the District maintenance activities be continued to address ongoing future maintenance needs.

Dredging of stream channels was investigated as part of the DWP. While dredging is considered a watershed maintenance activity, extensive re-grading and shaping of the stream channel would be required with this activity. Additionally, dredging limits proved difficult to establish both along the stream centerline and channel depth. Dredging of the stream channel would require a downstream tie-in location to match existing stream bed elevations. The extremely flat stream bed profiles on all watershed stream reaches makes matching existing stream bed elevations impractical. Additionally, dredging depths are difficult to establish due to limited historical data on original stream bed elevations and, thus, rely solely on approximations of dredging depths. In general, minor dredging operations in localized areas will provide little to no improvement to conveyance, particularly during larger storm events where additional storage or channel modifications would be required to significantly reduce water surface elevations. Due to the aforementioned reasons as well as dredging being considered a maintenance activity that would provide only temporary benefits to localized areas, dredging is not recommended as a regional stormwater management solution.

Sedimentation is a dynamic process that is affected by soil protective measures taken in upland and tributary areas and changing streambank conditions. The District's Watershed Management Ordinance will define standard practices for erosion protection on construction sites. Best management practices in upland areas should be paired with stream maintenance measures to reduce sediment delivered to waterways to reduce the need for extensive dredging programs.

Stormwater improvement projects recommended in the NBCR and LM DWP including detention basins, channel diversions, or erosion control armoring will require ongoing maintenance after construction. Costs associated with maintenance over a 50-year life-cycle period were included in cost estimates. It is recommended that the District develop maintenance plans for capital improvements, and where applicable, execute agreements with local governments that delegate certain maintenance responsibilities. It is intended that maintenance agreements will follow current District practice, where the District is responsi-

ble for operation and maintenance of structural, electrical, and mechanical facilities and grounds are the responsibility of partnering organizations.

Table 4.1.1 lists all problem area locations where standard stream maintenance activities are recommended including debris and blockage removal, removal of silt from culverts, and removal of sediment from stream channels.

TABLE 4.1.1  
Summary of Problem Areas where Debris Removal or Other Maintenance is Recommended

<b>Problem Area ID</b>	<b>Tributary</b>	<b>Location</b>	<b>Type of Maintenance Activity Required</b>
LM-EV-SM-01	Lake Michigan	Beachfront Outfalls in City of Evanston	Remove debris and clear outfalls of sedimentation
LM-KW-SM-01	Lake Michigan	48" culvert located under Green Bay Road and Metra North Line just south of intersection of Roger Avenue/Sterling Road/Green Bay Road in Kenilworth	Remove debris and clear 48" culvert of sedimentation
NB-NVDN-GV-SM-04	North Navy Ditch	North Navy Ditch from John's Drive to confluence with West Fork in Glenview	Remove debris and blockages along channel
NB-NVDS-GV-SM-07	South Navy Ditch	South Navy Ditch from Lehigh Road to confluence with West Fork in Glenview	Remove debris and blockages along channel
NB-WFNB-GV-SM-10	West Fork	Techny 32C Reservoir Spillway in Glenview	Remove debris and siltation along spillway and repair spillway
NB-WFNB-GV-SM-25	West Fork	West Fork from Willow Road to Chestnut Avenue in Glenview	Remove debris and clear channel
NB-WFNB-NB-SM-16	West Fork	Accumulation of debris at CCHD's structure number 016-3234	Remove debris and clear channel

## 4.2 Recommended Capital Improvements

Table 4.2.1 lists all recommended improvements for the NBCR and LM DWP. The District will use data presented here to support prioritization of a countywide stormwater CIP.

## 4.3 Implementation Plan

In general, alternatives listed in Table 4.2.1 can be constructed independently. One exception to this independence of alternatives is SR-08 and MS-14. SR-08 is an alternative targeted specifically for overbank flooding only at I-94 and Winnetka Road, while MS-14 addresses overbank flooding of I-94 at Winnetaka Road, Willow Road, and Skokie River crossing, and provides additional benefits along the Middle Fork, Skokie, and Mainstem reaches; therefore, the SR-08 alternative is only recommended if MS-14 is not implemented. Furthermore, because of the interaction of impacts between alternatives, the benefits associated with constructing several alternatives in a reach or subwatershed may exceed the sum of the benefits of the individual alternatives, or vice versa.

The data presented in Table 4.2.1, along with noneconomic factors, will allow the District to prioritize its CIP and to implement projects. A number of alternatives in Table 4.2.1 require the acquisition of land that currently may be unavailable. It is recommended that upon selecting an alternative for implementation, the District identify land acquisition needs and procedures. For example, the enabling legislation (70 ILCS 2605/7h (g)) for the District's stormwater management program states "the District shall not use Cook County Forest Preserve District land for stormwater or flood control projects without the consent of the Forest Preserve District of Cook County (FPDCC)"; therefore proposed projects involving FPDCC property cannot be implemented without FPDCC's permission. The District will work collaboratively with FPDCC to develop multi-objective projects beneficial to both agencies along with our constituents and also consistent with our individual missions.

**THIS PAGE INTENTIONALLY LEFT BLANK**

TABLE 4.2.1  
NBCR and LM Watersheds' Prioritization Matrix

Project	B/C Ratio	Total Benefits (\$)	Total Project Cost (\$)	Probable Construction Cost (\$)	Relative Damage Averted				Acreage Removed from Inundation Area	Wetland or Riparian Areas Impacted (acres)	Cumulative Structures Protected	Implementation Time (months) <sup>1</sup>	Water Quality Benefit	Communities Involved
					25%	50%	75%	100%						
WF-03	0.77	\$1,550,000	\$2,022,000	\$1,097,000	Green	Green	Green	Red	N/A	-	3	18	Slightly Positive	Metra and Northbrook
WF-06	1.26	\$146,484,000	\$116,088,000	\$87,422,000	Blue	Blue	Blue	Red	137	5	216	48	Slightly Positive	Northbrook Park District, Northbrook, Glenview, Golf, Unincorp. Cook Co.
MF-04	0.12	\$178,000	\$1,495,000	\$736,000	Blue	Blue	Blue	Red	5	3	4	12	No Impact	Forest Preserve District of Cook County (FPDCC), Northbrook, Unincorp. Cook Co.
MF-06	4.59	\$7,391,000	\$1,610,000	\$873,000	Green	Green	Green	Red	N/A	-	7	18	Slightly Positive	Northfield
MF-07	1.65	\$1,600,000	\$971,000	\$526,000	Green	Green	Green	Red	N/A	-	3	18	Slightly Positive	Northfield
SR-08 <sup>2</sup>	1.35	\$7,760,000	\$5,761,000	\$3,512,000	Red	Red	Red	Red	11	3	0	18	No Impact	Northfield, IDOT, FPDCC, Cook County Highway Department
MS-10 <sup>3</sup>	1.51	\$24,746,000	\$16,402,000	\$4,176,000	Blue	Blue	Blue	Red	40	6	329	36	No Impact	Chicago, Chicago Park District, FPDCC, Private Property Owners
MS-14 <sup>4</sup>	0.25	\$64,431,000	\$260,121,000	\$185,117,000	Blue	Blue	Blue	Red	1,051	90	1,153	60	Slightly Positive	Wilmette Park District, Wilmette, FPDCC, Glenview

1 - Implementation time includes anticipated construction timeframes. Additional time will be required for land acquisition, permitting, and design activities.

2 - SR-08 project addresses overbank flooding of the Skokie River near I-94 (Edens Expressway) and Winnetka Road. For purposes of benefit calculation for SR-08, no other temporary closure of I-94 due to overbank flooding is assumed.

3 - The City of Chicago has expressed a preference for Alternative MS-07, which is described in Section 3.4.3.5. Alternative MS-10 yields a higher B/C ratio and was therefore selected as the recommended alternative for the DWP.

4 - MS-14 project's total benefits includes benefits to the Middle Fork, Skokie River, and Main Stem NBCR subwatersheds. FPDCC and Wilmette Park District have indicated their unwillingness to provide land for this alternative.



**THIS PAGE INTENTIONALLY LEFT BLANK**